Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

UNITED STATES
DEPARTMENT OF AGRICULTURE
LIBRARY

Reserve
BOOK NUMBER 1.9
P6917
v.26-28
566323 1934-1936

GPO 8—7671

RECD FEB 1 - 1934 U.S. DEPT. OF AGRICULTURE PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

- - - - -

Vol. 26 January 10, 1934. No. 1
Personnel (Dec.11-Jan.10) and Field Station (Dec. 1-31)

PERSONNEL ITEMS

Effective January 1, Dr. Merle T. Jenkins is acting in charge of the corn project. Dr. Jenkins plans to remain in Washington until the beginning of the growing season and then return to Ames, Iowa, to care for some of the work he has been directing there. He expects to retain his contact with the program at Ames for the time being.

Also effective January 1, Dr. Neil E. Stevens, senior pathologist, formerly in charge of the disease survey in the Division of Mycology and Disease Survey is assuming his new duties in connection with the corn-disease program. Dr. Stevens is a pathologist widely known in the United States, his standing being indicated by the fact that he was elected president of The American Phytopathological Society at the annual meeting held in Boston during the Christmas holidays.

Plans for the future of the corn-disease program will be developed gradually as circumstances warrant.

Dr. Charlotte Elliott was authorized to attend, without expense to the Government, the meetings of the Society of American Bacteriologists at Philadelphia December 28 and 29.

Mr. C. A. Suneson read a paper entitled "Cheyenne Winter Wheat" before the Nebraska Crop Growers' Association at Lincoln, Nebr., on January 3. The paper was part of a more general subject, - What is Ahead in the Way of Improved Crop Varieties and Certified Seed?

Mr. Fred Young resigned as Assistant Scientific Aid at the Arlington Experiment Farm on December 17. He returned to his home in Maine because of the death of his father.

The following members of the Division were authorized to attend, without expense to the Government, the meetings of the American Association for the Advancement of Science held in Boston from December 26 to 30.

Dr. H. B. Humphrey, Dr. L. F. Randolph, Mr. F. D. Richey, Dr. H. A. Rodenhiser, and Dr. N. E. Stevens.

The following papers were presented before sccieties affiliated with the American Association for the Advancement of Science.

"Forecasting Disease Incidence As an Aid to Crop Management," by H. B. Humphrey. Read before the special session of The American Phytopathological Society.

"The Production of an Apparently New Variety of Puccinia graminis by Hybridization on Barberry," by M. N. Levine, Ralph U. Cotter, and E. C. Stakman. Read by E. C. Stakman before The American Phytopathological Society.

"Tetraploid Maize," by L. F. Randolph. Read before the Genetics Society of America.

MANUSCRIPTS SUBMITTED

62. An Outlook. M. A. McCall. Dec. 11. Jour. Amer. Soc. Agron.
63. Experiments on Iarovizing Corn. G.F. Sprague. Dec.18. Jour.Agr.Research.
64. Solubility of Potassium in Corn Tissues. V. H. Morris and J. D. Sayre. December 28. Plant Physiology.
65. The Present Status of Sweet Corn Breeding. Glenn M. Smith. December 28. Annual Report of the International Crop Improvement Association.

66. Corn Hybrid and Variety Experiments. G. H. Stringfield. December 28. Annual Report of the Ohio Agricultural Experiment Station.

67. Cheyenne Winter Wheat. C. A. Suneson. December 29. Annual Report of the Nebraska Crop Growers' Association.

68. Growing Barley for Malt and Feed. H. V. Harlan. December 29. Farmers' Bull.

RECENT PUBLICATIONS

Wheat Production in Colorado 1926-1932. D. W. Robertson, Alvin Kezer, J. F. Brandon, J. J. Curtis, Dwight Koonce, and Wayne W. Austin, Colo. Agr. Expt. Sta. Bul. 404, 44 pp., illus. September 1933. (Cooperation between the Colorado Agricultural Experiment Station and the Division of Cereal Crops and Diseases from 1907 to 1924, inclusive, and since September 1930.)

A Mechanical Method for the Determination of Absorption in Bread Doughs. C.C. Fifield. Cereal Chem. 10(6): 547-554. November 1933.

Distribution of the Varieties and Classes of Wheat in the United States in 1929. J. Allen Clark and K. S. Quisenberry. U. S. Dept. Agr. Circ. 283, 76 pp., figs. 1-68. November 1933.

Inheritance of Seed Color in Crosses of Brown-Seeded and White-Seeded Sorghums. John B. Sieglinger. Journal of Agricultural Research 47(9): 663-667. November 1, 1933.

Leptosphaeria salvinii, the Ascigerous Stage of Helminthosporium sigmoideum and Sclerotium oryzae. E. C. Tullis. Journal of Agricultural Research 47(9): 675-687, 6 figs. November 1, 1933. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Akransas Agricultural Experiment Station.)

An Outlook. M. A. McCall. Jour. Amer. Soc. Agron. 25(12): 775-778. December 1933.

Horace Mann Woolman. H. B. Humphrey. Phytopathology 23 (12): 931-933, illus. December 1933.

BPI Memo. No. 747.

December 18, 1933.

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

We are in receipt of the following letter from the Director of Personnel and Business Administration in regard to leases where the rental value does not exceed one hundred dollars during the fiscal year:

> "With further reference to the recent decision of the Comptroller General requiring the use of the Standard Form of Lease for the rental of all properties, there is attached a copy of a waiver issued by the Director of Procurement under date of November 26, 1933, authorizing the use of less formal agreements where the rental value does not exceed one hundred dollars and the term of the lease does not exceed one year. This waiver is intended to reduce the trouble and expenses involved in making short term rental agreements, or contracts for longer periods at low rental rates. As this department does not possess authority to make leases beyond one year the final portion of the waiver does not apply.
>
> "It should be understood that the agreements made under the terms of this waiver must be reduced to writing and a copy of each filed with the Department Real Estate Officer. It is suggested that the form illustrated on Page 11 of the "Digest of Lease Procedure" issued February 6, 1933, be used in making all such contracts."

566383

This provides for the continuance of informal lease agreements previously discontinued under the terms of P. B. A. Circular 242, which was circularized to Divisions. The form recommended for use is the usual Bureau form, a stock of which is now carried in the Bureau Property Room. Procedure in negotiating lease agreements under one hundred dollars in any fiscal year will accordingly revert to our usual practice. Copy of the waiver from the Director of Procurement is also attached.

Very sincerely,

(Signed) Wm. A. Taylor,

Chief of Bureau.

TREASURY DEPARTMENT
OFFICE OF THE SECRETARY
WASHINGTON

November 26, 1933.

Procurement Division

TO THE EXECUTIVE DEPARTMENTS AND INDEPENDENT ESTABLISHMENTS OF THE GOVERNMENT.

Upon recommendation of the Interdepartmental Board of Contracts and Adjustments at its meeting held November 24, 1933, Mr. J. L. Carr, Chairman; the use of Standard Form of Government Lease by the various departments and independent establishments is not obligatory where the total consideration to be paid by the Government does not exceed one hundred dollars and the term of the lease does not exceed one year.

C. J. Peoples
Director of Procurement.

Office of Chief of Bureau December 29, 1933.

To the Staff,

Dear Friends:

The approach of the end of our official association in the work of the Bureau brings vividly to mind the many deep and enduring friendships which have developed as we have mutually striven to accomplish the objectives which have been in mind since the Bureau organizzaion. The basic reason for its formation and development has been and is the unending need for the discovery of truths not heretofore recognized or but imperfectly understood. And after that, the welding of such together into processes and practices useful in the betterment of agriculture and therefore promotive of the welfare of the people.

That some of our efforts might have been more speedily or abundantly productive if undertaken in a different way or under other leadership is possible. That, I take it is true of most human effort when viewed from beyond rather than from before. But that the work done by our many able and untiring workers has been an important force in advancing the frontiers of useful knowledge and practice as the horizon of science has broadened in our time, is beyond question.

Much of this useful achievement has been due not merely to the individual ability, industry and faithfulness of the staff and the determination of each to give to the country the best he has in him, but equally to the spirit of friendliness and neighborliness which has made cordial cooperation and effective team work increasingly possible.

That this spirit will continue to broaden, intensify, and fructify under the new leadership is my fervent prayer and firm belief.

With sincere good will and best wishes to each,

Very truly,

(Signed) Wm. A. Taylor

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau — January 2, 1934.

To the Staff -

Dear Friends:

In assuming the direction of our Bureau activities my first communication is happily both an official and a personal one of greeting and heartiest good wishes for the New Year to you all. May our efforts together in the years ahead be marked by splendid achievement as the many during which Dr. Taylor has so ably, so kindly, and so understandingly coordinated our many activities in so many varied fields.

The New Year brings in with it both challenge and opportunity to our organization. With the true spirit of cooperation and friendliness that is so much a part of the folk of our Bureau, we accept the challenge together, and together seize the opportunity for usefulness in our great common national recovery efforts.

Before too long a period may pass, I hope to meet each of you personally at your various points of duty, alike in Washington and throughout the country. In the meantime, my warm good wishes to each and every one.

Sincerely,

(Signed) K. A. Ryerson.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

(Dec. 9) The dry weather in November permitted the completion of threshing operations in commercial fields but has prevented plowing of certain types of soil. The light rainfall of both October and November has caused a shortage of water for stock in many pastures not adjacent to large streams. However, owing to high temperatures, the growth of pastures has been considerably extended into the winter.

Threshing operations were practically completed on the station the first week of the month. The laying off and construction of roads and levees on the new land comprised much of the field work on the station.

(Jan. 5, 1934)

There was very little rain in December until the 30th, when nearly 5 inches fell. The temperatures were unusually high for this season of the year. The maximum temperature was 84° and the minimum, 34°.

The favorable weather permitted field operations to proceed with few interruptions during the entire month. Where land was not too hard farmers made good headway in plowing.

Nearly all plowing on the Station was completed before the heavy rain of December 30. The new land has been laid off into series for plots and much work has been done in the way of road construction.

"Rice News", a new monthly publication devoted to rice and published in Lake Charles, La., made its appearance in November.

ARKANSAS

Rice Branch Experiment Station, Stuttgart (Rice Production and Improvement, C. R. Adair) (Nov. 24) Although the rice in this section was late this year it is all threshed now. The weather was favorable during the harvesting and threshing season.

The quality of the rice is fairly good, but owing to poor stands as the result of heavy rains soon after seeding, the yields, in general, are low. In some fields that escaped hard rains at a critical time yields were satisfactory. This was very noticeable on the Station, the rice in some of the experiments giving high yields and in others very low yields. The yields in the varietal experiment in field plots were very low, as shown in the table. The rice in nursery plots gave high yields this year.

Quite a large acreage of winter oats has been sown in this area this year, nearly all being devoted to some strain of Red Rustproof. Although the rainfall has been light this fall, the moisture has been sufficient to produce a satisfactory growth.

The precipitation for September, October, and November to date was 2.54, 1.34 and 1.80 inches, respectively. The first killing frost, 26° F., occurred on November 8.

Average yield per acre of 16 varieties of rice grown in triplicate 1/20th-acre plots

Variety [1]	C.I.no.	Yield per acre (Bu.)	Yield per acre (Lbs.)
Colusa	1600	57.0	2565
Acadia	1988	55.4	2493
Shoemed	3625	55.3	2489
Early Blue Rose [2]	--	55.2	2484
Edith	2127	52.4	2358
Coloro	1561-1	45.3	2039
Fortuna	1344	44.4	1998
Supreme Blue Rose	5793	42.7	1922
Lady Wright	5451	41.3	1859
Early Prolific	5883	41.0	1845
Storm Proof	7705	38.9	1751
Delitus	1206	33.8	1521
Mortgage Lifter	5550	33.7	1517
Icla	4559	33.3	1499
Honduras	1643	33.0	1485
Rexoro [3]	1779	8.6	387

[1] All varieties sown May 18, except Supreme Blue Rose, sown May 11.
[2] Check variety, average of 15 plots. [3] Not fully mature at time of first killing frost.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Dec.15) The warm, open weather of the fall months continued through the first 15 days of December. The maximum temperatures ranged from 56 to 84° and the minimum from 24 to 59°. There has been no rain since November 3.

Small grain seedings are badly in need of rain. Although there has been fairly good growth in most instances, the ground is badly cracked and some plants are dying. Leaf rust has appeared and is spreading rapidly on susceptible varieties.

[Dec. 31]

The drought that prevailed throughout the State all fall was broken on December 29. Rains were general over the State with the exception of the Panhandle. At Denton 1.46 inches fell over a 2-day period. The total precipitation for the month is 1.54 inches, which is 1.04 inches below the average. The total precipitation for the year was 29.04 inches, or 3.73 inches below normal.

The maximum temperature for December was 84°, the minimum 22°. The mean of 51.9° is the highest mean ever recorded in December at this Station and is 6.5° above normal. The weather throughout most of the month was clear, warm, and very much like spring.

Small grain made fairly satisfactory progress in December. Although grain needed rain it was not suffering materially, and the lack of moisture was beneficial in that it reduced the amount of top growth which would have occurred during the warm weather had there been plenty of moisture. Stock were turned on the grain about the first of the month but it was soon necessary to remove them as they were damaging the stands. The ground was so dry that many plants were poorly rooted and in the loose dirt were easily pulled up in grazing. The rainfall at the end of the month was very beneficial and will provide moisture for germination of smut nurseries and better growth of all grain.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(Dec. 30) There was very little precipitation in December. Early-sown winter wheat on the Station is in poor condition because of drought since seeding. In the September 15 seeding in the rate-and-date-of-seeding plots on cropped ground, more than three fourths of the leaves are brown and dead. Most of the winter-wheat experiments were sown about the middle of October and these appear to be in fair condition. Temperatures in December were rather mild until the latter part of the month, when a minimum of 8° was recorded. The mean temperature to date in December is 40.6°, which is 4.1° above normal.

The maximum temperature in December was 77° on the 10th, the minimum, 8° on the 27th. Precipitation in two showers totaled 0.2 of an inch.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(Dec. 13) The fall of 1933 has been marked by long periods of mild, bright, and very dry weather. Very little rain fell in September, October, and November and most of the central plains area was badly in need of moisture by the end of November. The drought was broken by a general rain of 1/2 to 1 inch over most of that area on December 1 and 2. Despite the long dry period, winter wheat is in fairly good condition in many parts of Kansas. Considerable damage to fall-sown wheat resulted from severe dust storms in certain localities in the central, south central, and west central parts of the State. In such localities the shortage of soil moisture had resulted in poor stands and weak plants. These were readily blown out by high winds in October and November.

In the extreme southwestern part of the State the prospects for a wheat crop are brighter than usual at this time of year. It is reported, however, that farmers in that section are very short of feed, owing to last summer's drought and that livestock will suffer accordingly. Water for livestock has failed in several localities and it has been necessary to ship considerable stock to market or to more favorable localities.

At Manhattan all nursery and plot sowings of winter wheat are in excellent condition. While rainfall has been very scant, there was sufficient soil moisture to bring about normal germination and sustain considerable growth. The long period of very mild weather has resulted in somewhat more top growth than usual. The mild temperatures also favored the development of leaf rust, and all early-sown wheat was heavily rusted before December 1 despite the absence of moisture. Stem rust was absent from wheat but fairly abundant on volunteer oats.

Greenhouse experiments were delayed by high temperatures in September and early October, but were started about the middle of October. Studies on the distribution and prevalence of physiologic forms of *Puccinia triticina*, the inheritance of resistance, the effect of leaf rust on the rate of transpiration, and the reaction of promising varieties and hybrids to known physiologic forms of leaf rust are under way.

Vernalized winter wheat being used by Dr. H. Fellows in foot-rot studies is very interesting. Plants from vernalized seed sown on October 18 and subjected to a 16-hour day thereafter are now heading. Plants from vernalized seed subjected to the normal short day of this period of the year are much farther developed than plants from nonvernalized seed.

Fort Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)[Dec. 18] The fall was mild and dry until a rain of 2.15 inches fell on December 15. This was most helpful to the wheat, which had begun to suffer from drought where early seeding had been done. The wheat situation is none too favorable in the western third of the State because of a low supply of subsoil moisture.

The season of 1933 was one of the few driest and hottest on record. Even so, the experimental yields were fairly satisfactory. The average yield for wheat was approximately 18 bushels per acre, corn 5 bushels, and grain sorghum 20 bushels. Oats and barley were almost failures.

A large group of Federal Aid men are at work on the Hays Station, building and sanding roads. The cereal project is being benefited from this aid in getting low places on the experimental field filled and leveled. The state park adjoining the station land has been made one of the most attractive in the western half of the State. A dam has been placed across the stream running through the park, a suspension bridge built, and numerous other improvements made.

The field work on the cereal project has been brought to a close for the season.

SOUTH DAKOTA

United States Field Station, Redfield (Wheat Improvement, E. S. McFadden)(Jan 2.) There isn't much to report from this Station except a continuation of the big drought, the worst by far in the history of the State. Every month of the past year has been below normal in precipitation with the exception of March and July, which were only slightly above normal; and in addition to the shortage in precipitation, every month of the year was above normal in temperature.

The severe wind and dust storms of November did considerable damage to winter wheat and rye. Many commercial fields were almost completely blown out, which will make it necessary to abandon them. The level seedings of winter wheat on the Station were completely ruined, while the furrowed plots and nursery fared only slightly better. The nursery was sown in furrows and the surrounding field was ridged by duck footing just before the dust storms. But in spite of this protection the ridges between the nursery rows were completely cut away by the wind, and the rows of wheat were left standing on the tops of new ridges where the furrows had been.

The wind and dust storm of November 12 was the worst of several during the month. It damaged buildings, hay stacks, and fences and produced high electrical discharges that made the opening of wire gates hazardous and that short circuited the ignition system of automobiles.

NORTH DAKOTA

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (Dec. 16) Cloudy weather prevailed during the first half of December though there was very little snowfall. The precipitation was 0.18 of an inch; the maximum temperature was 55° on the 6th, minimum, -6° on the 10th.

The acre yields of flax varieties grown in plots during the past 11 years in comparison with N. D. R. 114 as standard are shown in the table.

Acre yield of 14 flax varieties, in comparison with N. D. R. 114, grown at Mandan, N, Dak., 1923-33.

Variety	C.I.no.	No.of years grown	Yield (Bu.per acre) Variety named	N.D.R.114 same years	Percent of N.D.R.114
N. D. R. 114	13	11	4.2	4.2	100
N. D. 40034 1/	491	4	4.4	2.7	163
Sib no. 206	473	6	5.3	3.3	161
Bison	389	6	5.2	3.3	158
Buda	326	9	5.0	3.5	143
Sel. of C.I.119	474	4	4.4	3.1	142
Hyb. 160 x 179	496	3	3.8	2.7	141
Sel. 167-254	475	5	4.2	3.0	140
Sel. Hyb. 12 x 112	478	5	4.1	3.0	137
Linota	244	10	5.0	3.7	135
Rio (Long 79)	280	10	4.6	3.7	124
Redwing	320	9	4.2	3.5	120
Walsh	645	2	2.7	2.4	113
L. Golden	735	2	1.7	2.4	71
B. Golden	644	1	1.1	2.2	50

1/ Apparently identical with Bison.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (Dec. 30) The weather has been rather changeable during most of December but extremely cold the past week. The minimum temperature was 23° below zero on the 26th. Most of the snow that fell early in the month was melted before the cold wave. There are now about 4 inches of snow on the ground. The temperature was above 40° today, but a cold wave and probable snow is forecast for tonight.

The total precipitation for 1933 up to date has been 11.45 inches, or 4.10 inches below normal. The greatest deficiency was in June, the rainfall being 1.93 inches below the average for that month.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Dec.30) Although the mean temperature for December is not yet available, it will be considerably below normal, probably very close to zero. The lowest temperature recorded was -38° on the 28th. The snowfall is heavier than the average, and during the coldest weather the uniform winter-hardiness nursery has been well covered.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(Jan. 1) The weather for the month of December was very changeable but taken altogether was not extremely cold. Many rapid changes in the air temperature have been recorded on the thermograph during the last three weeks. On December 23 the temperature dropped 40° in a few hours and on the 15th a like change was recorded. The week of December 17 to 23 was very windy and a great deal of soil blowing resulted in some sections of Central Montana. Winter wheat still seems to be in good condition in the immediate vicinity of the Station, however.

The maximum temperature was 58° on the 2nd, the minimum 19° on the 25th. The precipitation was 0.76 of an inch.

WASHINGTON

Agricultural Experiment Station, Pullman (Wheat Improvement, O. A. Vogel)(Jan. 4) The rainfall in December has been exceptionally heavy. The total precipitation was 7.12 inches, or 4.44 inches above the previous mean for the month. This monthly precipitation has been exceeded at Pullman in only one month, November 1906, when the total was 7.31 inches.

Wheat sown in September now has up to seven tillers per plant. The October seedings have reached the tillering stage. These stages of growth are seldom reached in the Palouse during the winter.

The temperatures so far have not been sufficiently severe to kill the volunteer Alaska field peas. The short periods of cold weather that have occurred were accompanied by a snow cover and were soon followed by rains.

OREGON

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague)(Jan. 3) The precipitation at Corvallis for December was 14.16 inches, which, together with an equally record-breaking warm month (coldest minimum temperature, 31°), has forced the growth of cereals. There is a heavy epidemic of leaf-spot diseases on grasses in lawns and pastures.

The precipitation in the Alsea River Valley was 28.67 inches for December, making a total of 42.15 inches since September 11. Rain fell every day in December except the 8th.

On High Prairie wheat is protected somewhat by snow but the snow is disappearing rapidly. The precipitation for the year was 28.24 inches, 11.78 inches being recorded in December.

The precipitation at Tygh Ridge for the year was only 10.74 inches. Near by at Dufur, where the mean annual precipitation exceeds 14 inches, it was 6.16 inches up to December 1933.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (Jan.2) December 1933 was unusual in being one of the warmest winter months on record. The mean temperature for the month was 33° as compared with a mean of 15° for 1930, 20° for 1931, and 17° for 1932. Spring flowers are commencing to open in many parts of the State. Several warm rains have fallen each time followed by a warm clear sky. The precipitation for the month totaled 2.46 inches, making the total for 1933 12.60 inches. This is the driest year since 1920. A light snow fell on the 15th but soon disappeared with the several warm rains that followed. A heavy thunder shower occurred on the 30th and more than 0.5 of an inch of rain fell on New Year's Day. All this moisture is going into the soil with no runoff.

Unofficial reports indicate a heavy snowfall on the Utah watersheds for this time of year.

MAR 1 - 1934
PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 February 10, 1934 No. 2
Personnel (Jan. 11-Feb.10) and Field Station (Jan. 1-31)

PERSONNEL ITEMS

Mr. C. E. Chambliss attended the American Game Conference held in New York City in January to present information on wild rice and to confer with leaders of sportsmen's organizations and others interested in growing wild rice as food for game birds.

Dr. Merle T Jenkins was appointed principal agronomist, in charge of corn investigations, effective January 1, 1934, succeeding Mr. F. D. Richey, now associate chief of the Bureau of Plant Industry.

Dr. Jenkins was appointed scientific assistant in May 1919 and was engaged in corn-breeding investigations in Minnesota and Wisconsin in 1919 and 1920 and at Bloomington, Ill., in 1921. From April 1922 until December 1933 he was in charge of the cooperative corn-improvement program at the Iowa Agricultural Experiment Station, Ames, Iowa. From May 1917 to April 1919 he was a second lieutenant in the United States Infantry, stationed most of the time at Camp Lewis, Washington.

Dr. Jenkins was graduated from the Oregon State College in 1916, receiving the degree of B. S. in Agriculture. At the Iowa State College he was granted the degrees of M. S. in Plant Breeding in 1925 and Ph. D. in Genetics in 1928.

Dr. M. A. McCall and Dr. M. T. Jenkins spent January 11 and 12 in Knoxville, Tenn., to consult with officials of the Tennessee Agricultural Experiment Station on plans for an office, laboratory, drying, and storage building for the cooperative corn work, funds for which were alloted under the Public Works Administration.

MANUSCRIPTS SUBMITTED

1. Selenium Injury to Wheat Plants and Its Inhibition by Sulphur. Annie M. Hurd-Karrer. January 23. Jour. Agr. Research.
2. The Practical Application of Iarovization. J. H. Martin. January 26. (Note) Jour. Amer. Soc. Agron.
3. Better Rice by Breeding. H. M. Beachell. February 2. Rice News [Lake Charles, La.]
4. Barley Diseases Controlled by Seed Treatment. R. W. Leukel and V. F. Tapke. February 2. Misc. Pub.
5. Effect of Stage of Seedling Development Upon the Cold Resistance of Winter Wheats. C. A. Suneson and G. L. Peltier. February 3. Jour. Amer. Soc. Agron.
6. Mycological Letters from M. A. Curtis 1856-1861. N. E. Stevens. February 7. Mycologia.
7. A Case of Complementary Factors in Barley Giving a Lethal F_1. G. A. Wiebe. February 9, Jour. Heredity.

RECENT PUBLICATIONS

Varieties of Rice for Texas. R. H. Wyche and H. M. Beachell. Texas Agr. Expt. Sta. Bull. 485, 22 pp., figs. 1-9. November 1933. (Cooperative investigations between the Texas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Inheritance of Characters in Rice Jenkin W. Jones, Jour. Agr. Research 47(10): 771-782. November 15, 1933.

Laboratory and Field Studies on the Development and Control of Stem Rot of Rice. E. C. Tullis and E. M. Cralley. Ark. Agr. Expt. Sta. Bull. 295, 23 pp., figs. 1-6. December 1933. (Cooperation between the Arkansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Inhibition of Selenium Injury to Wheat Plants by Sulphur. Annie M. Hurd-Karrer. Science (n. s.) 78(2033): 560. Dec. 15, 1933.

The Production of an Apparently New Variety of Puccinia graminis by Hybridization on Barberry. M. N. Levine, Ralph U. Cotter, and E. C. Stakman. (Abstract) Phytopathology 24(1): 13-14. January'34. (Cooperation between Division of Barberry Eradication and Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Cold Resistance Adjustments of Field-Hardened Winter Wheats as Determined by Artificial Freezing. C. A. Suneson and George L. Peltier. Jour. Amer. Soc. Agron. 26(1): 50-58. January 1934. (The data on which this paper is based were obtained in connection with the cooperative wheat improvement program, this phase being cooperative between the departments of agronomy and plant pathology, Nebraska Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

Iarovization in Field Practice. John H. Martin. 13 pp. [Mimeographed] Jan. 18, 1934.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON

February 9, 1934.

Office of Chief of Bureau
B. P. I. Memo. 758

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

The following administrative changes are effective this date:

1. A Division of Plant Exploration and Introduction is established, Mr. B. Y. Morrison, Principal Horticulturist in Charge. In this Division are merged the former Division of Foreign Plant Introduction, including the project on Erosion Plant Nurseries, the project on Rubber and Other Tropical Plants of the former Division of Cotton, Rubber and Other Tropical Plants, and the former Division of Botany. The new Division will also administer the National Arboretum, with Dr. Coville continuing as Acting Director. Dr. O. F. Cook and Dr. Frederick V. Coville are assigned to the new Division of Plant Exploration and Introduction, in charge of the Rubber Investigations project and the Botany project, respectively.

2. A Division of Cotton and Other Fiber Crops and Diseases is established, Dr. M. A. McCall, Principal Agronomist in Charge. In this Division are merged the project on Breeding and Cultural Improvement of Cotton, including Cotton Diseases, of the former Division of Cotton, Rubber and Other Tropical Plants, and the former Divisions of Egyptian Cotton Breeding and Fiber Plant Investigations. Dr. T. H. Kearney and Mr. Lyster H. Dewey are assigned to the new Division of Cotton and Other Fiber Plants and Diseases, in charge of the Egyptian Cotton Breeding project and the Fiber Plant Investigations project, respectively. Dr. McCall will continue as Principal Agronomist in Charge of the Division of Cereal Crops and Diseases.

Very sincerely,

(Signed) K. A. Ryerson,

Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(Feb.6) Rain fell on 15 days in January and the precipitation for the month totaled 7.72 inches.

The maximum temperature was 77°, the minimum, 27°.

Plowing on the station was completed early in January. Other field work included the cleaning of ditches and the construction of roadways.

Most farmers are uncertain at present as to the acreage of rice to be sown but have gone forward with their field work wherever possible.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Jan. 15) The weather in January was unusually open and warm. In the first half of the month temperatures were very close to normal but in the latter part mean temperatures were above normal. The maximum temperature for the month was 76°, the minimum 18°, and the mean, 47.9°, which is 3.6° above normal. The only rain of practical importance was one of 0.97 of an inch on the 3rd. Killing frosts occurred on 10 days.

Small grain made satisfactory progress. Although the rainfall was below normal, it was sufficient for crop needs. The lack of rainfall also helped to check growth during the warm weather. The winter-wheat smut nursery sown November 16 emerged in January. The spring-sown oat varietal test was sown at the end of the month.

Before the rains the ground was so loose that the plants were poorly rooted and stock pulled them up in grazing. Fall stands of oats are still poor and it appears that the seed which did not germinate has rotted.

A report from the cooperative experiment at Hereford, Texas, states that the test there has not germinated as no rain has fallen since it was sown.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Jan. 31) Grain yields of the grain sorghum varietal experiment seeded June 14 and that emerged June 20 and July 19, were from 17.5 to 27.6 bushels per acre. The two feteritas made the highest yields, followed by Standard, Club, and Sharon kafirs.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (Jan.31) Precipitation in the form of snow totaling 0.77 of an inch fell on January 6. On the station this snow did not drift badly, and the cereal experiments were covered with 4 to 5 inches of snow when the minimum temperature for January of 6° occurred on the 8th. In general, the weather in January was mild for the season, and the condition of winter wheat on the station has improved since the early precipitation. The maximum temperature for January was 74° on the 24th. The precipitation totaled 0.83 of an inch, 0.81 of which was recorded as snow.

COLORADO

United States Dry Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(Feb. 4) The weather of January was a continuation of the mild, clear, quiet weather experienced during the first half of the winter. This was the warmest January on record at Akron; the maximum temperature was 65° on the 27th, the minimum 10° on the 24th. The precipitation was 0.02 of an inch.

The minimum temperature thus far this winter is 5° above zero. The wheat has remained green all winter and so far no winterkilling has occurred.

NEBRASKA

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson) (Jan. 15) Mean temperatures in November and December averaged approximately 5° and 9°, respectively, warmer in 1933 than in 1932. Nearly 2 inches of precipitation, little of it in the form of snow, has fallen since December 1.

The superior cold tolerance of the current crop of winter wheat, first noted in artificial freezing experiments in late November, has carried through to the present time. Comparative experiments indicate the cold tolerance of common varieties of wheat in the field at Lincoln in January during the past four winters to be about as follows:

1930-31	1931-32	1932-33	1933-34
-20°F.	-4°F.	-8°F.	-24°F.

NORTH DAKOTA

United States Northern Great Plains Field States, Mandan (Cereal Agronomy, V. C. Hubbard)(Feb. 1) Six hundredths of an inch of precipitation fell in January in the form of rain. Fifty-two hundredths of an inch precipitation, including 5 inches of snow, fell in December. Temperatures in December were slightly below normal; in January the mean temperature was 9° above normal.

Warm weather soon after each snowfall melted the snow on the level. The winter-wheat nursery has been bare most of the winter.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(Feb. 1) The weather in January was warm and dry, the mean temperature being 19.5, or 9° above normal. The precipitation was but 0.20 of an inch. The ground is now bare except for the remnants of a few drifts of snow. Fields where winter wheat and rye were sown have been protected by a small amount of snow until recently. The surface soil is moist from the melting of snow.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Jan 31) The weather in January has been rather changeable with temperatures and precipitation averaging about normal. Between noon of the 27th and the next morning the thermometer dropped some 60° from thawing temperatures to 30° below. There have been several severe blizzards but the snowfall has not been heavy. Very little of the snow has melted, and the uniform winter-hardiness nursery has been fairly well covered since early November.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(Feb. 1) The month of January was very open, warm, dry and many days of high winds were experienced. Although some fields were injured by soil blowing most fields of winter wheat are still in fair condition. Moisture is needed badly throughout central Montana.

The maximum temperature was 57° on the 27th, the minimum -8° on the 24th. The precipitation was 0.28 of an inch.

IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, Harland Stevens)(Jan.23) The precipitation for January was nearly normal. The temperatures are the warmest ever recorded at Aberdeen for January. The lowest temperature recorded this year was 7° above zero.

Nurseries are being prepared for sowing in the spring.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(Feb. 1) The winter thus far has resembled the regular autumn months of this section. The ground has been almost continuously bare and the days and nights very pleasant. The snow line at present is very nearly the same as in the early part of June last year with only a trace of snow below 6,000 feet elevation. The mean temperature for January 1934 was 31°, as compared to 25°, 17°, and 18° for January 1933, 1932, and 1931, respectively. Maximum and minimum temperatures for the month were 49° and 5°, and the total precipitation was 1.34 inches as compared to 1.39 inches for a mean for January. This is the first January that readings of the evaporimetor could be made since the experiment farm was established. No records of an equally warm winter have been found.

Winter wheat shows some signs of growth but there is much concern lest low temperatures should yet come and injure the crop.

Several leaflets are being prepared on cereal varieties for Utah and on the comparative production of grains grown under similar conditions in 15 counties of the State.

APR 2 1934
BUREAU OF PLANT INDUSTRY

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 March 10, 1934 No. 3
Personnel (Feb.11-March 10) and Field Station (Feb.1-28)

PERSONNEL ITEMS

The following members of the Division attended the meetings of the Fourth Hard Red Spring Wheat Conference held at the Nicollet Hotel, Minneapolis, Minn., February 15, 16, and 17, 1934: E. R. Ausemus, R. H. Bamberg, J. Allen Clark, V. C. Hubbard, E. S. McFadden, S. C. Salmon, G. S. Smith, R. W. Smith, and J. L. Sutherland. There were also present State agricultural experiment station workers, and commercial interests were represented by the Northwest Crop Improvement Association, of Minneapolis. An informal program was arranged in which the accomplishments of the past five years were reviewed. Plans were made for modifying and continuing the cooperative program.

Dr. M. T. Jenkins left Washington on February 15 for Knoxville, Tenn., to consult with officials of the Tennessee Agricultural Experiment Station on the preparation of plans for the office, laboratory, drying, and storage building for the cooperative corn work, funds for which have been allotted under the Public Works Administration.

Dr. Jenkins and Dr. N. E. Stevens left Washington on February 22 to visit Wooster, Ohio, La Fayette, Ind., Bloomington, Ill., Madison, Wis., and Ames, Iowa, to discuss the cooperative corn improvement program with officials of the State agricultural experiment stations and members of the Division. Dr. Stevens returned to Washington from Ames. Dr. Jenkins visited Baton Rouge, La., and Knoxville, Tenn., before returning to Washington on March 16.

Mr. J. W. Jones spent two weeks in February in Louisiana, Texas, and Arkansas to confer with officials of State agricultural experiment stations and superintendents of rice stations on cooperative rice research programs.

Dr. M. A. McCall spent several days in February in North Carolina, South Carolina, and Georgia in the interests of cooperative experiments with cotton.

MANUSCRIPTS SUBMITTED

8. A Comparison of Reciprocal Top Crosses in Corn. R. R. St. John. February 21. Jour. Amer. Soc. Agron.

9. The Cereal Rusts. H. B. Humphrey, E. C. Stakman, E. B. Maine, C. O. Johnston, H. C. Murphy, and Wayne M. Bever. February 23. Farmers' Bulletin.

10. Parboiling Rough Rice. J. W. Jones and J. W. Taylor. February 24. U. S. Dept. Agr. Circ.

11. Markton, A High-Yielding Oat Variety for Utah. R. W. Woodward and D. C. Tingey. February 27. Leaflet of the Utah Agricultural Experiment Station.

12. A Comparison of the Surface, Furrow, and Listed Methods of Planting Corn. M. T. Jenkins. February 27. Jour. Amer. Soc. Agron.

13. Better Rice by Breeding. Pt. 2: Rules of the Plant Breeder's Game. N. E. Jodon. February 28. Rice News (Lake Charles, La.)

14. Ophiobolus graminis at Various Depths in Naturally Infested Soils and Its Effects on Wheat Plants When Placed at Different Levels in the Soil. Hurley Fellows and C. H. Ficke. February 28. Jour.Agr. Research.

RECENT PUBLICATIONS

On the Genetic Nature of Induced Mutations in Plants. II. A Haplo-Viable Deficiency in Maize. L. J. Stadler. Missouri Agr. Expt. Sta. Research Bull. 204, 29 pp., illus. November 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

Diplodia Ear Rot in Inbred and Hybrid Strains of Sweet Corn. Glenn M. Smith and John F. Trost. Phytopathology 24(2): 151-157, figs. 1-2. February 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

A Physiologic Form of Septoria tritici on Oats. Roderick Sprague. Phytopathology 24(2): 133-143, figs. 1-2. February 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

The Relative Importance of Cercosporella herpotrichoides and of Leptosphaeria herpotrichoides as Parasites of Winter Cereals. Roderick Sprague. (Phytopath. Note) Phytopathology 24(2): 167-168. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon and Washington agricultural experiment stations.)

Development of Oats Resistant to the Smuts and Rusts. T. R. Stanton, H. C. Murphy, F. A. Coffman, and H. B. Humphrey. (Phytopathological Note) Phytopathology 24(2): 165-167. February 134. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

GEORGIA

Georgia Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison) (February 26) At this date the strains of the Red Rustproof oat, such as Appler, Hastings, Nortex, etc., have been damaged very little by the cold weather of February. The strains of the less hardy Red Algerian oat, such as Alber, Berger, College Algerians, etc., show slightly more damage. Some of the strains of Fulghum have been damaged considerably. Victoria and Bond also have suffered from the cold. All hybrids in which Fulghum is one parent were injured. Selections from a Victoria x Nortex cross (x3012) were severely damaged or completely destroyed. It should be possible to make some very desirable selections this year, provided a normal crown-rust epidemic develops.

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(March 7) The precipitation for February was 3.76 inches and fell on only 7 days.

The maximum temperature was 75° and the minimum, 29°. Ice formed on two days.

Field work on the station included mainly the construction of levees, cleaning of ditches, and preparation of land for row crops.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (March 1) Winter wheat on the Station made some top growth during the mild weather the first part of February. A recent cool spell has temporarily stopped growth in the hardy varieties and killed back early tender material in the nursery. Although reports indicate that portions of the hard red winter wheat belt received a good supply of moisture in February, moisture is still needed here. Precipitation in February, largely in the form of snow, was recorded on 6 days of the month and totaled 0.5 of an inch. The maximum temperature for February was 83° on the 4th; the minimum was 6° on the 26th.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(March 1) Leaf-rust investigations in the greenhouse at Manhattan are proceeding in a satisfactory manner considering the limitations in help and space. Physiologic form determinations on collections made in the Uniform Cereal Rust nurseries in 1933 are nearly completed. Physiologic form 9 again proves to be the most prevalent and widely distributed form in the Mississippi valley and Great Plains areas. Form 33 seems to have been second in prevalence in 1933, followed by forms 15 and 5 in the order named. The prevalence of form 33 is interesting, since that form seldom has been an important one in other years.

Greenhouse experiments on the effect of leaf-rust infection on the rate of transpiration in a resistant and a susceptible variety of wheat have just been completed but the data have not been analyzed.

Studies on the reaction of various species of Triticum, Hordeum, Secale, Avena, and related grasses to the various leaf-rust fungi are under way and are yielding interesting results. It has again been clearly proved that certain cereals of another genus are sometimes more susceptible to a certain leaf rust than are some varieties of the species and genus which is its normal host.

Sowings of spring wheat, oats, and barley will be made as soon as the snow on the ground is gone and the soil can be worked.

The first half of February was extremely mild and springlike. A maximum temperature of 76° was recorded on the 14th. The last half of the month was marked by several cold snaps, the latest of which was accompanied by about 6 inches of snow. The lowest temperatures of the winter were recorded on Feb. 26 and 27 when the minima were -11° and -16° F., respectively. These temperatures killed peach buds but cereals were protected by a heavy blanket of snow. The entire Great Plains and western Mississippi Valley areas were covered with snow varying from 2 to 8 inches in depth during this period. The snow melted rapidly on Feb. 28 and March 1 and the resulting moisture was most welcome. Although the snowfall for February was above normal, the total moisture for the month was about 1.2 inches below normal.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(March 1) A precipitation of 0.05 of an inch was recorded for February as compared with the average of 0.36 of an inch. Temperatures were mild except for a few nights during the last week of the month. The minimum temperature was -22° on February 24, the maximum, 56° on February 28.

The winter-wheat nursery has been bare of snow most of winter and since the wheat has not emerged so far considerable natural vernalization may take place.

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(Feb. 16) Exceptionally mild temperatures have prevailed throughout the first half of February. The average mean temperature was 32°, which is 18° higher than the average mean temperature for February during the past 20 years. The maximum temperature for this period was 54°, and the minimum, 14°. Only a trace of precipitation was recorded for this period. The total precipitation recorded since December 23 amounted to only 0.1 of an inch. The open fields have been bare of snow for about a month and the snow is nearly all gone from the coulees and sheltered spots. The frost is practically gone from the surface of the ground and the soil is dry. At least one farmer in this locality has already started disking his land in preparation for seeding.

The flax F_1 hybrid plants in the greenhouse have made good growth and commenced to bloom.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(March 2) The month of February was mild and comparatively dry. There has been little or no snow on the ground most of the time. The mean temperature for the month was 23.6°, or 10.5° above the normal for this Substation. The total precipitation for the month was but 0.05 of an inch. The ground is now bare and thawed out about 2 inches on the surface. The minimum temperature for February and for the winter was 25° below zero on February 25. The maximum was above 50° on a few days.

An examination of the winter-wheat nursery shows it to be in apparently the same condition as when the ground froze up about the last of November. The wheat germinated unevenly in the fall and sprouts varied from a trace to an inch in length, but none of the plants emerged in the fall. It will be interesting to note what the result of this unintentional iarovization will be. Most plants are apparently still alive.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith) (Feb.28) The weather in February was generally mild. The mean temperature was 7.8°, which is slightly above normal, and the total precipitation was 0.34 of an inch, or about one-half of the normal. This section of the State has been well covered with snow all winter. This is the warmest day of the month, the maximum being around 40°.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (March 1) Except for the last week in February the weather was warm and open. Winter wheat came out of dormancy and plots of winter wheat seeded November 5 in the date-of-seeding experiment emerged with good stands. The lower temperatures experienced during the last week of the month were accompanied by a moderate snowfall, which protected winter wheat from injury. The precipitation was very light, only 0.43 of an inch being recorded.

The maximum temperature was 62° on February 1 and 2; the minimum was -22° on the 25th.

IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, Harland Stevens)(Feb.12) The average maximum temperature in January was 40.8° as compared with a 22-year average of 30.2°. The average minimum was 24.7° as compared to a 22-year average of 8.2°. The precipitation in January was above the average, the total being 0.90 of an inch, as compared with the average January precipitation of 0.57 of an inch. Nearly all the precipitation during the winter has been in the form of rain or of snow that melted shortly after falling.

Some winter wheat is reported to have been sown in January in the dry-land sections of southeastern Idaho. The wheat that was sown in the fall is said to be in fair condition.

WASHINGTON

Agricultural Experiment Station, Pullman (Wheat Improvement, O. A. Vogel) (March 5) The winter in the Northwest has been exceptionally mild this year. The coldest weather occurred in December when a minimum of 21° was recorded at Pullman. In January and February the lowest temperature was 28°, which occurred during frosts.

The fall-sown wheat varieties at Pullman have had nearly continuous growing weather. Federation and Jenkin at present have a vegetative growth to a height of 12 inches. The Turkeys or Crimeans have quite largely remained prostrate.

The varietal nursery at Lind was seeded on February 23 and that at La Crosse on February 26. In both areas the soil had been in excellent condition for seeding for at least two weeks. Farmers in areas represented by these two nurseries were then in the midst of their seeding operations.

The rains of last week have prevented the seeding of the Walla Walla nursery. Farmers in that area have been seeding for the last two weeks. Field operations have been begun in the area near Pullman.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin)(March 1) The winter of 1933-34 was unusually mild in this section. The minimum temperature for the winter was 21° on December 25, at which time about 10 inches of snow fell. The snow melted in a few days, and since then open weather has prevailed.

Soil moisture conditions are favorable at this time though additional rain will be necessary for high yields of crops. Volunteer plants of peas, oats, and barley survived the winter without damage from winterkilling. Stands of winter wheat are excellent, and the plants are growing steadily.

Many farmers in the district completed their spring seeding more than 2 weeks ago. The sowing of spring grains is now under way on the Station and will be finished next week.

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague) (Feb.14) The weather in January throughout most of the Pacific Northwest was the mildest on record for that time of year. At Corvallis the season was at least 4 weeks ahead of schedule on February 1. Clear warm days but with cool nights (down to about 28° F on some nights) have aided in holding plants back since the first of February and the danger to vegetation is considerably lessened at this date. Precipitation in January was heavy for the first 20 days, although the average for the month was slightly under normal, as there was no precipitation the last part of the month.

All volunteer and seeded grain grew unchecked all winter. Spring oats seeded a year ago this spring started up from the crown and many fields that were stubble last fall now have good stands of feed. Stem rust at Corvallis and crown rust in the Alsea Valley are prevalent in this type of field. Barley scorch and powdery mildew are making severe inroads in fall-sown fields of barley. Gibbellina footrot was present on wild and volunteer oats in the Alsea Valley, this being about 90 days earlier than usual.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(March 1) Mild weather prevailed during the month of February. The northern portion of the State has had no snow covering on the valley floor during the winter. In spite of the mild open winter the precipitation has been slightly above normal. The rainfall from December 1 to March 1 totaled 5.64 inches. The watersheds of the State are reported as generally below normal. For this reason early seeding of spring grains is being done throughout most of the State.

The mean temperature for February was 38°; the minimum was 18° on February 11.

Winter wheat has been emerging and is growing nicely. The stands promise to be satisfactory.

All preparations were made to seed the barley and wheat nurseries on the central experimental farm by February 15. Rains commenced that night and have continued at intervals for a period of 12 days. Seeding operations may be under way soon if no further rains occur.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis) (March 2) The rainfall to date for this winter is 13.07 inches, or about 2 inches below average. The snowfall in the mountains is about 80 percent of normal but no water shortage for irrigation is expected. Due to mild temperatures and sufficient moisture green feed in the valley and foothills is abundant and of much value to the sheep and cattle industries.

Rice prices are satisfactory, No.1 paddy being quoted at one dollar and eighty cents per hundred pounds.

The following table gives the 2-year results of fertilizer experiments conducted on 1/15th-acre plots replicated 9 times at the Biggs Rice Field Station, Biggs, Calif., 1932-1933.

Fertilizer	Yield per acre (pounds) 1932	1933	Average	Increase over Average of checks (Lbs.)
Leunasalpeter	4,408	3,897	4,153	1,062
Ammonium sulphate	4,190	3,835	4,013	922
Leunaphos	3,915	4,097	4,006	915
Urea	4,095	3,860	3,978	887
Ammophos	3,913	4,018	3,966	875
Ammophosko	3,997	3,915	3,956	865
Calurea	4,043	3,732	3,888	797
Areo cyanamid	3,715	3,658	3,687	596
No fertilizer	3,224	2,957	3,091	--

University Farm, Davis (Cereal Agronomy, G. A. Wiebe)(Feb. 23)
The winter has been very mild so far. The cereals sown in November have made good growth, perhaps too good, as it may result in excessive height and lodging. The precipitation is below normal, but a little rain is falling now.

Approximately 30 acres were seeded in January to pure seed of several varieties. This seed will be distributed as "Foundation Seed" to competent farmers.

Dr. Arne Müntzing, of the Svalöf station in Sweden, and Dr. C. W. Hungerford of the University of Idaho, visited the farm in February. Dr. Müntzing addressed the Genetic Seminar on the subject of "Recent Cytogenetic Results with Some Forage Grasses."

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

- - - - - -

Vol. 26 April 10, 1934 No. 4
Personnel (March 11-April 10) and Field Station (March 1-31)

PERSONNEL ITEMS

Dr. H. V. Harlan left Washington on March 26 to look after the interests of cooperative barley investigations in Illinois, California, Oregon, Arizona, and Idaho during the spring and summer season.

Dr. M. A. McCall recently spent three weeks in the southwestern states in the interests of cooperative experiments with cotton.

MANUSCRIPTS SUBMITTED

15. Classification of Wheat Varieties Grown in the United States. J. Allen Clark and B. B. Bayles. March 16. Tech. Bull.

16. Histological Characters of Flax Roots and Resistance to Wilt and Root Rot. Lytton W. Boyle. March 22. Tech. Bull.

17. Report on a Preliminary Field Survey of the So-Called "Alkali Disease" of Livestock. K. W. Franke, T. D. Rice, A. G. Johnson, and H. W. Schoening. March 23. Circ.

18. The Lateral Flowers of Two-Rowed Barley. H. V. Harlan and Mary L. Martini. March 24. Jour. Agr. Research.

19. Flower Structure in the Deficient and Irregular Barleys of Ethiopia. H. V. Harlan and Mary L. Martini. March 24. Jour. Agr. Research.

20. Summary of Results from Field Experiments with Vernalized Wheat. H. H. McKinney, W. J. Sando, A. F. Swanson, V. C. Hubbard, G. S. Smith, C. A. Suneson, and J. L. Sutherland. March 26. Circ.

21. Physiologic Specialization in Puccinia glumarum in the United States. Wayne M. Bever. March 27. Phytopathology.

22. Relation of Leaf-Rust Infection to the Yield, Growth, and Water Economy of Two Varieties of Wheat. C. O. Johnston and E. C. Miller. March 28. Jour. Agr. Research.

23. A Regional Program for Reducing the Cost of Production and Improving Quality in Barley. James G. Dickson. March 30. Ann. Rpt. Amer. Railway Development Assoc.

24. Trichoderma Sheath Spot of Rice. E. C. Tullis, April 2, Phytopathology.

25. Better Rice by Breeding. Pt. 3. The Plant Breeder's Proving Ground. H. M. Beachell. April 3. Rice News.

26. Preliminary Note on Another Foot Rot of Wheat and Oats in Oregon. Roderick Sprague. April 10. (Phytopath. Note) Phytopathology.

RECENT PUBLICATIONS

Our Best Varieties of Winter Wheat and Prospects for Better Ones. C. A. Suneson. Nebr. State Bd. Agr. Ann. Rpt. 1933: 179-183. [1933] (Nebr. Crop Growers Assoc. 24th Ann. Rpt.) (Cooperation between the Division of Cereal Crops and Diseases and the Nebraska Agricultural Experiment Station.)

Stripe Resistance and Yield of Smooth-Awned Barley Hybrids. R. G. Shands, B. D. Leith, J. G. Dickson, and H. L. Shands. Wis. Agr. Expt. Sta. Research Bull. 116. 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Correlated Inheritance of Reaction to Diseases and of Certain Botanical Characters in Triangular Wheat Crosses. Elmer R. Ausemus. Jour. Agr. Research 48(1): 31-57, figs.1-5. January 1, 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Correlated Inheritance of Reaction to Stem Rust, Leaf Rust, Bunt, and Black Chaff in Spring-Wheat Crosses. H. K. Hayes, E. R. Ausemus, E. C. Stakman, and R. H. Bamberg. Jour. Agr. Research 48(1): 59-66. January 1, 1934. (Cooperation between the Minnesota Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

The Loss in Yield That May Be Expected from Planting Second Generation Double-Crossed Seed Corn. Frederick D. Richey, G. H. Stringfield, and George F. Sprague. Jour. Amer. Soc. Agron. 26(3): 196-199. March 1934.

Methods of Estimating the Performance of Double Crosses in Corn. Merle T. Jenkins. Jour Amer. Soc. Agron. 26(3): 199-204, figs. 1-4. March 1934. (The data on which this paper is based were obtained in connection with the corn improvement program at Ames, Iowa, conducted by the Division of Cereal Crops and Diseases in cooperation with the Farm Crops Subsection, Iowa Agricultural Experiment Station.)

The Practical Application of Iarovization. J. H. Martin. (Note) Jour. Amer. Soc. Agron. 26(3): 251. March 1934.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(April 4) The temperatures of March were slightly below those of March 1933. The maximum was 80° on one day; the minimum was 32° on March 19.

The precipitation was 5.72 inches. The total precipitation since January 1 is 17.20 inches, which is 2.80 inches more than for the same period last year.

Work on the station has progressed satisfactorily. Rice and corn have been sown in the date-of-seeding experiment. Thirteen varieties of corn were planted in replicated single row plots. Corn also has been planted in the corn and cotton rotation experiment.

Considerable headway was made in the construction of levees to take care of new experiments. Where there is sufficient land the plow and levee pusher are used, but where all possible space is needed and the length is short, the levees are constructed by hand.

Because of unfavorable weather farmers did not accomplish very much field work in March. Only a few have sown rice.

On March 5 fertilizer was applied at different rates on replicated plots in a farmer's pasture north of Crowley, for the purpose of noting the effect upon the growth of clovers and grasses. The plots have been fenced off, and clippings will be made to determine the yields from the treated and check plots. This work is being done in cooperation with the Dairy specialist of Louisiana State University.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(March 15) The precipitation for the first half of March was 2.07 inches. This is the first rainfall of sufficient quantity since January to provide for storage of moisture in the subsoil. The rainfall of the winter months has been sufficient only for the current crop needs.

The spring-sown oat nursery emerged the first week of March. Germination was slow owing to cool, cloudy weather and cold soil. Fall-sown oats are in good condition but have made only a small spring growth. Winter wheat has started spring growth and is overcoming the retarding effect of leaf rust which has been so prevalent all winter. A small quantity of flax was sown on March 14.

The writer inspected the experiments in the Panhandle about the middle of March. The wheat varietal experiment and the nursery has stood the dry winter unusually well. There have been only two light rans of approximately one half inch each since seeding. Stands are not satisfactory. Cooperative experiments consisting of 10 varieties of winter wheat sown at Plainview and Spearman were found in good condition but a similar experiment at Hereford has not germinated.

There were general rains averaging from one quarter to one inch over the Texas Panhandle in the first week of March. Except in certain areas these rains were not sufficient. In Floyd, Hale, Potter, Hansford, and Ochiltree counties the rainfall was sufficient, as in most parts of these counties wheat is up and growing. The large wheat-growing areas in Deaf Smith, Oldham, Hartley, Moore, Grey, Randall, Swisher, and Castro counties did not receive enough moisture to do any good and in these counties wheat is in poor condition. Only about one half of the fields have germinated and in these fields most of the wheat is existing on surface moisture and has made very little root growth. On large areas in Deaf Smith County the wheat that has germinated has roots only about 1 to 2 inches long and the plants are so poorly anchored that farmers dare not pasture the wheat.

In the counties of Hansford and Ochiltree on the north Plains, wheat is in satisfactory condition. In that section there was a good rain in November. This and the satisfactory August rainfall enabled all early wheat to emerge and get a good start. Some fields of late wheat have not emerged because the surface soil is dry.

Wheat conditions below the caprock (from Clarendon, Texas east) are satisfactory; although wheat is not grown extensively except in small areas.

(April 1)

The weather conditions in March were not especially favorable for the growth of small grains. A maximum temperature of 87° was recorded on March 22 and 23 and a minimum of 24° on the 19th. The precipitation for the month was 3.75 inches, or 1.71 inches above normal, the mean temperature for the month being 2.3° above normal.

The spring-sown oats that emerged about March 1 have made very slow growth. They were injured to some extent by freezes on the 10th and 19th. The latter freeze also injured wheat and barley to some extent although these crops quickly recovered. Leaf rust of wheat is still doing considerable damage and farmers continue to report greenbug damage. Fall-sown barley is jointing, rye is heading, and the earliest wheats such as Nebraska No. 28 are jointing.

The cold unfavorable weather has made corn planting later than usual and there is talk of replanting because of seed rotting in the cold wet soil. Winter legumes have been very slow in spring growth and were injured by the freezes.

Newspaper reports indicate that wheat conditions in the Texas Panhandle are much better than when last reported. About two inches of precipitation, the majority of which fell as snow, were recorded on the 17th. This snow covered most of the Plains area and no doubt provided adequate moisture for some time. Another rain of 0.80 of an inch was recorded at Amarillo on March 31.

KANSAS

Fort Hays Branch Station, Hays (Cereal Agronomy, A. F. Swanson)(March 16)
The winter has been mild and open except for several low temperatures during the latter part of February and in early March. So far no winter injury is apparent in the wheat seedings. Since January 1 light precipitation has fallen from time to time either in the form of snow or rain. This precipitation protected the wheat during the periods of low temperature in that the surface soil was kept moist. On the cereal project winter wheat appears to be 30 days ahead of normal in spring growth. Since the subsoil moisture is somewhat limited from last year's drought the vigorous growth of the wheat crop may be a detriment at a later date. In Kansas wheat is generally satisfactory, most of it showing advanced development for the season.

The sowing of the spring small-grain crops was completed today. A considerable quantity of new material was added to the barley nursery, the number of new lines being the largest since 1923.

COLORADO

United States Dry Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(April 2) March has been typically blustery this year with either rain or snow on 14 days. The precipitation for the month was 0.36 of an inch. Wind threatened to attain sufficient velocity to start soil blowing on the 10th and again on the 16th, when 24-hour averages of 10.1 and 9.8 miles per hour, respectively, were recorded. The maximum temperature for March was 73° on the 20th; minimum, 10° on the 16th.

Winter wheat began active growth early in March. Wheat has made an unusual growth for this time of the year. All plots of wheat survived the winter and the stands are very satisfactory.

Spring wheat, oats, and barley in the varietal experiments were seeded the latter part of March. There is sufficient moisture to cause prompt emergence. An increase plot of Club Mariout barley seeded on March 6 has emerged to good stands.

Winter wheat in this region is above average. Most farmers are seeding spring wheat and barley. A large acreage of Club Mariout barley is being seeded in this region.

NEBRASKA

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson)(March 16) A minimum winter temperature of -9° was recorded on February 26. Average monthly temperatures have been above normal since October. Precipitation has been adequate but snow scarce.

All varieties and seeding dates of winter wheat have so far survived 100 percent; in fact, Hope spring wheat seeded in late October has survived nearly 50 percent. Cold resistance in the wheats is still greater than normal.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(April 2) Snow and rain totaling 0.35 of an inch on March 31 prevented the total precipitation for January, February, and March from being less than for any similar period in the past 60 years. The total precipitation for March was 0.58 of an inch, 0.2 of an inch below normal. The winter at Mandan as a whole has been very mild. Temperatures in March ranged from -6° on March 8 to 69° on March 12. The mean was 27°.

Field work will start soon after the 2 inches of snow now on the ground melts. Some duckfooting of loose corn ground and fallow was done early in March to prevent soil blowing.

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(March 16) The mild, dry weather that prevailed throughout January and February continued through the first half of March. The average daily mean temperature for the first half of March was 30° The maximum was 69° on the 12th and the minimum -6° on the 8th. The precipitation for this period, mostly in the form of rain or sleet, amounted to only 0.07 of an inch. The total precipitation from January 1 to March 15, inclusive, was only 0.18 of an inch. There is no season on record during the past 59 years in which so little precipitation was recorded during this period. In only two of the past 59 years, 1878 and 1931, have temperatures averaged higher during this period.

The surface soil is so dry that immediate damage from soil blowing is likely to be severe where special precautions are not taken to prevent it.

The flax F_1 plants in the greenhouse have shown markedly favorable response to application of fertilizer and are setting a good crop of bolls.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(March 31) The near approach of seeding time finds the soil still very dry but with the surface wet from frequent snowsqualls and a light rain today. The total precipitation for March is approximately 0.75 of an inch, which is only slightly below normal.

Seed is being prepared for seeding at the Substation.

Some field work has been done in the vicinity and some wheat seeding is reported to be in progress.

Some winter wheat and rye that began to germinate late last fall have started to emerge and other plants appear to be alive just below the surface. The number of plants that ultimately survive probably will depend on soil moisture conditions during April.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(March 31) The temperatures in March have averaged 18.2° - about 1° below normal - and the precipitation has totaled 0.20 of an inch, or one fourth of the normal. Snow has entirely melted from the fields but the ground has not thawed. The precipitation the past 6 months, mostly in the form of snow, has totaled 4.97 inches, or about one half inch above the normal for that period. However, the soil was extremely dry in the fall, and good spring rains will be necessary to give crops a normal start. Very little moisture remains in the subsoil.

The annual Winter Fair of Cavalier County was held on March 14, and was attended by some 400 farmers and their families. The writer judged the exhibits at the Seed Show held in connection with the Fair. The following numbers of entries were represented: Durum wheat, 41, hard red spring wheat, 10, oats, 15, barley, 20, field corn, 6, rye, 1, emmer, 1, flax, 5, sweet clover, 3, and potatoes, 17. The durum wheat exhibit was particularly fine.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(April 2) It was unseasonably warm the first part of the month and winter wheat and perennial forages grew to some extent. There were several wind storms but they caused no serious damage to crops. Fields of winter wheat have survived the winter with perfect stands and the general condition of this crop is far above average.

The greater part of the precipitation in March came in the form of snow during the last week of the month. The total precipitation for March was above average and the soil moisture condition is very favorable at present.

The maximum temperature was 65° on the 18th, the minimum, 6° on the 6th and 9th. The precipitation was 0.96 of an inch.

WASHINGTON

Agricultural Experiment Station, Pullman (Wheat Improvement, O. A. Vogel) (March 24) Spring field operations in the Northwest were begun three to four weeks earlier than last year. The spring varietal nurseries including those in the outlying locations have been seeded. The earliest was seeded at Lind on February 23 and the last was just completed at Pullman.

All fall-sown wheat varieties survived with full stands. Those in the Walla Walla nursery show the greatest development of any of the winter-wheat nurseries. On March 9 Federation had begun to joint, placing this variety in a dangerous stage of growth because of the possibility of frost injury.

Nearly all of the wheat varieties in the nursery and in the surrounding fields in the Walla Walla area were very badly infected with powdery mildew, Erysiphe graminis. A grayish covering of spores, which had fallen from the leaves, was observed on the soil in the earliest seeded fields.

Another item of interest in this particular locality is the abundance of tarweed, a species of Madia. As this weed seems to grow more rapidly than wheat under cooler conditions, it has caused some farmers to plow up perfectly good winter-wheat stands and reseed them to spring wheat. Most of this reseeding was observed near Prescott, in north central Walla Walla county, where seeding was delayed in the fall because of lack of moisture. In areas other than in central and southern Walla Walla county the weed is not so serious.

At Pullman, three varieties in the fall-sown nursery, Fortyfold, Golden, and Albit, are heavily infected with leaf rust. The early winter barleys are beginning to joint.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin)(April 2) The total precipitation for March was 1.21 inches. The soil was becoming too dry for good plowing until rains during the last week provided additional moisture. A minimum temperature of 21° on March 24 caused some frost damage, particularly to barley, but the injury was only temporary. The days have been warm and all crops have made rapid growth. A thin soil crust caused a reduction in stand of spring grains by preventing the emergence of many plants. However, with normal tillering, the stands should not be too thin for good yields.

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (March 24) The winter of 1933-34 was one of the mildest ever experienced in eastern Oregon. The lowest temperature recorded at Moro was 20° on Dec. 26. The lowest in January was 26° and in February 28°. The weather thus far in March has been unseasonably warm. It has been possible to work in the field every day since early February.

Although winter wheat was sown much later than normal on account of dry soil, the moderate precipitation and mild weather during the winter made growing conditions favorable enough so that this crop is now considerably farther advanced than usual at this time of the year. Spring grains also have emerged.

Some sections of the Pacific Northwest received much more than the normal precipitation during the winter, but in this part of the Columbia Basin the precipitation was below normal. The total precipitation at Moro since September 1, 1933, to date was 7.66 inches, or about 1 inch less than the normal for this period.

The subsoil is deficient in moisture and a normal winter-wheat crop is not probable unless growing conditions from now on are unusually favorable.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (April 2) Balmy spring weather continued in March. The mean temperature was 46° as compared to 35° and 44° for March and April of 1933, respectively. The total precipitation for March was 1.39 inches while the monthly evaporation was 2.46 inches. The precipitation and evaporation since October 1933 have been about equal, totaling 8.07 and 7.87 inches, respectively.

The small-grain nursery and plots were seeded during the early part of March and emerged within 10 days. Excellent stands were obtained and rapid growth followed. The general appearance and growth of the nursery resembles that of about May 22 of last year. March seeding is reported only once before at this Station and that during the latter part of the month.

All except one of the uniform cereal nurseries in the various counties were seeded during the week from March 12 to 17. Many commercial grain fields were seeded in February and early March. They show good stands and considerable growth.

The winter-wheat nursery, as well as most commercial seedings in northern Utah, emerged during the winter and show good prospects for a normal crop. There is considerable concern over a possible water shortage for this year, as very little snow remains on the watersheds. Today the scene has changed somewhat, as there are about 4 inches of snow on the ground and more is falling. Many trees are leafing and in full bloom.

SEED LIBRARY MAY 23 1934 BUREAU OF PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

- - - - - - - -

Vol. 26 April 25, 1934 No. 5
Personnel (April 11-25) and Field Station (April 1-15)

PERSONNEL ITEMS

Mr. A. C. Dillman left Washington on April 22 for Texas, Arizona, and California to study varieties of flax and methods of production, harvesting, and marketing. He will be back about the middle of May.

Dr. M. T. Jenkins left Washington on April 13 for Ames, Iowa, where he will look after the interests of cooperative corn breeding experiments during the summer. He made stops at Columbus, Ohio, and Urbana, Ill., to confer with the personnel of the Division and officials of the agricultural experiment stations on cooperative investigations.

Dr. L. J. Stadler came to Washington April 25 to confer with members of the Division staff and others on cooperative corn experiments.

MANUSCRIPTS SUBMITTED

27. Induced Mutations in Plants. L. J. Stadler. April 3. Chapter in a book on biological applications of radiation, to be published by The National Research Council under the editorship of Dr. B. M. Duggar.

28. Panicles of Rexoro Rice Injured at Emergence by Sun Scald. E. C. Tullis. April 14. (Phytopath. Note) Phytopath.

29. The Romance of Plant Breeding. J. H. Parker. April 17. In Rpt. Kans. State Bd. Agr.

30. Keys to Aid in the Identification of the More Important Foot Rots of Winter Grains in the Pacific Northwest. Roderick Sprague. April 24. Mimeographed Circular of the Oregon Agricultural Experiment Station.

31. The Effect of Mildew Infection on the Response of Wheat-Leaf Tissues Normally Resistant to Leaf Rust. C. O. Johnston. April 24. (Phytopath. Note) Phytopathology.

RECENT PUBLICATIONS

Field Studies on Resistance of Hybrid Selections of Oats to Covered and Loose Smuts. T. R. Stanton, F. A. Coffman, and V. F. Tapke. U. S. Dept. Agr. Tech. Bull. 422, 10 pp. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa, North Dakota, Montana, Idaho, and Oregon agricultural experiment stations.)

Differential Varietal Responses of Winter Wheat to Time of Planting. C. A. Suneson and T. A. Kiesselbach. Jour. Amer. Soc. Agron. 26(4): 294-296. April 1934. (Cooperation between the department of agronomy, Nebraska Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

Resistance of Wheat Varieties to Bunt at Moccasin, Montana, and North Platte, Nebraska. J. L. Sutherland and N. E. Jodon. Jour. Amer. Soc. Agron. 26(4): 296-306. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Montana and Nebraska agricultural experiment stations.)

Heterosis or Hybrid Vigor in Oats. F. A. Coffman and L. L. Davis. Jour. Amer.Soc. Agron. 26(4): 318-327, figs. 1-3. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, R. M. Caldwell)(April 18) We are about to complete the greenhouse studies of physiologic forms of leaf rust of wheat occurring in the wheat-growing sections east of the Mississippi River in 1933. Thirteen forms have been found in the 1933 collections. Physiologic form 15 was the most abundant, comprising 27 percent of the determinations made. In 1932 this form was abundant in the south but rare in the northern States of the area studied. This year it was also abundant in the north. Forms 9, 56, 57, and 44 were also widely distributed.

Very little leaf rust has come through the winter in the vicinity of La Fayette, Ind. One pustule is all that has been found thus far in many observations.

Moderately hardy, soft winter wheats represented by Michigan Amber, Progeny 2, and Purkof have survived the winter nearly 100 percent, although there has been considerable foliage killing. Tender varieties such as Red Rock, Gladden, Nittany, and American B nner have lost about 50 percent of the tillers. The very tender varieties Redhart, Leap, and Purplestraw were entirely or nearly wiped out. Hard red winters in general were little affected in this vicinity.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (April 15) Weather conditions in the first half of April were the most favorable for small grain of any period during the spring months. The maximum temperature was 87°, the minimum, 40°. The precipitation amounted to 1.53 inches. A rather severe wind and dust storm occurred on April 1 and another one on the 11th. Wind run throughout the period was above normal.

All small grains are making satisfactory growth although considerable damage is being done by leaf rust on wheat. Wheat varieties are all jointing and Nebraska 28 wheat is showing first heads. Barley varieties started heading on the 12th and Frazier oats is also showing first head. Two seedings of flax have been made this month.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(April 14) Rain late in March and early April has put winter wheat on the Station in good condition. However, growth of most material is heavy enough and soil moisture low enough so that any very long period of drought may do considerable damage. The earliest varieties of winter wheat will start to head next week. Two varieties of fall-sown barley in the nursery are heading now. Victoria and Bond in the uniform oat winter-hardiness nursery were completely winterkilled, but most varieties in this nursery had high survival percentages. Very little winterkilling occurred in fall-sown barley. For the first time since 1929, it appears that there will be a fruit crop in this region.

The precipitation for March was 1.71 inches, recorded on 7 days. The maximum temperature was 87° on the 20th and the minimum 15° on the 18th. In April so far the precipitation has totaled 1.69 inches, nearly all of which fell on the 3rd and 5th. The maximum temperature was 91° on the 10th and the minimum, 39° on the 13th.

COLORADO

United States Dry Land Field Station, Akron (Wheat Improvement, J. J. Curtis)[April 16] The maximum temperature for the first 15 days of April was 79° on the 10th and the minimum, 21° on the 3rd. The precipitation was 0.25 of an inch. The weather has been unusually warm and as a result winter wheat has reached the jointing stage. There was no winterkilling of wheat in this region. Stands on the Station are all good. Winter wheat is beginning to suffer for want of moisture.

Spring seeded oats, barley, and spring wheat are emerging to good stands. All seeding of the spring small grains has been completed.

The sixth Annual Feeders Day was held at this station on April 12. About 150 persons were present.

NORTH DAKOTA

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(April 16) The weather for the first half of April has been very changeable, with showers, snow squalls, and dust storms, and temperatures ranging from 20 to 65°. The total precipitation was 0.65 of an inch early in the month. Several dust storms last week dried out the surface soil badly.

Seeding of cereal experiments began April 10 with the seeding of the uniform smut nursery. The spring-wheat nursery of 16-foot rows and the smut nursery were sown last week, and replicated field plots of spring wheat and oats were sown today.

The fallowed nursery soil has enough moisture to insure fairly uniform germination, but the field plots on corn land may germinate unevenly owing to lack of moisture.

The stand of winter wheat in field plots and nursery is very thin while winter rye has a fairly good stand.

Seeding is becoming quite general in this district.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (April 16) The only precipitation recorded for the first two weeks of April was 0.23 of an inch on the 1st. The remainder of the period has been dry, with maximum temperatures ranging from 31 to 70°. Soil blowing has been quite common, the wind of April 13 being particularly strong.

Considerable field work was accomplished on the Station during the week of April 9, which is several days earlier than work of this nature can ordinarily be done satisfactorily. Seeding of the cereal plots was started April 14.

The maximum temperature was 70° on the 12th and 13th and the minimum 16° on the 3rd and 14th.

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (April 16) The drought still continues although about 1 inch of rain during the period from March 27 to April 4 provided sufficient moisture to facilitate satisfactory plowing. Since April 4 no precipitation has been recorded. The plowing, disking, and duckfooting as preliminary preparation for seeding flax was done April 9 just in time to forestall severe damage from soil blowing. Exceptionally strong winds on April 10, 11, and 14 caused violent soil blowing. The air was so heavily saturated with dust at times that everything beyond the range of 50 feet was invisible. The surface soil is again so dry that seed sown at this time probably will not germinate satisfactorily until there is more rain.

The maximum temperature for the first half of April was 70° on the 7th; the minimum was 22° on the 15th. The precipitation was 0.59 of an inch.

MAY 23 1934

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

- - - - - - -

Vol. 26 May 10, 1934 No. 6
Personnel (April 26-May 10) and Field Station (April 16-30)

PERSONNEL ITEMS

Mr. C. E. Chambliss spent two weeks in Florida, Georgia, and South Caroline, beginning April 25, to confer with officials of the agricultural experiment stations of these States and others concerning the introduction of Zizania in various places for the purpose of attracting water fowl. At Chapman Field near Miami, Fla., Mr. Chambliss seeded some Patna rice.

Dr. S. C. Salmon, accompanied by Mr. F. C. Meier, principal pathologist in charge of barberry eradication, and Dr. E. C. Stakman, of the University of Minnesota, spent April 24, 25, and 26 in the vicinity of Blacksburg and Elk Creek, Va., to examine wheat-rust nurseries and barberry areas with special reference to stem-rust epidemics.

From May 1 to 4, Dr. Salmon and Mr. J. W. Taylor visited the State agricultural experiment stations at Ithaca, N. Y., and State College, Pa., and inspected wheat fields in New York, Pennsylvania, and Maryland with special reference to winterkilling. In New York they found extensive injury, many fields having been abandoned and plowed up. Others undoubtedly will be. The condition of the fields in New York and northern and western Pennsylvania would not exceed 50 percent. In southeastern Pennsylvania and northern Maryland no winterkilling was observed. The injury is of particular interest since it is clearly the direct effect of low temperatures combined with a light snow covering. There was slight evidence of heaving in some fields but without doubt heaving played a minor role in determining the amount of injury this season. This is contrary to the usual situation when winterkilling occurs in that area. In the eastern winter-wheat hardiness nurseries at Cornell University the survival of different varieties ranged from zero to 100 percent.

Dr. J. D. Sayre, of Wooster, Ohio, recently conferred with Department officials on cooperative corn improvement experiments and inspected the corn experiments at the Arlington Experiment Farm.

Mr. T. R. Stanton left Washington May 9 for a month's trip in the southern States in the interests of oat investigations.

MANUSCRIPTS SUBMITTED

32. Experimental Equipment for the Manufacture of Alimentary Pastes, C. C. Fifield. May 9. Cereal Chemistry.

33. The Occurrence of Stem Rot of Rice in California. E. C. Tullis, Jenkin W. Jones, and L. L. Davis. May 9. (Phytopath. Note) Phytopathology.

RECENT PUBLICATIONS

Developmental Anatomy and Homologies in Wheat. M. A. McCall. Jour. Agr. Research 48(4): 283-321, pls. 1-2, figs. 1-14. Feb. 15, 1934.

Rice Experiment Stations May Give Domestic Industry Two Improved Varieties of Rice. H. M. Beachell. Rice News 1(5): 8-9. March 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.

The Markton Oat - A New Variety for Utah. R. W. Woodward and D. C. Tingey. Utah Farmer 14(17): 3. April 10, 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Utah Agricultural Experiment Station.)

ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS DIVISION OF CEREAL CROPS AND DISEASES Calendar Year 1933

In the calendar year 1933, 97 articles, papers, and abstracts were published in the various series of Department publications, in publications of cooperating State agricultural organizations, in private journals, or as mimeographed unnumbered publications of the Division. In the same year 80 manuscripts were submitted for publication. There remain as of December 31, 1933, 42 manuscripts submitted in 1933, 2 submitted in 1932, and 2 submitted in 1931.

GENERAL OR MISCELLANEOUS

Allen, Ruth F. Heterothallism in Puccinia graminis, P. coronata, and Melampsora lini. (Abs.) Phytopathology 23(1): 4. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

_____ A Cytological Study of the Teliospores, Promycelia, and Sporidia in Puccinia malvacearum. Phytopathology 23(7): 572-586, figs. 1-4. July 1933. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Humphrey, H. B. Report of the Cooperative Uniform Cereal-Rust-Differentiating Nurseries for the Year 1932. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 21 pp. June 10, 1933. (Mimeographed)

_____ Horace Mann Woolman. Phytopathology 23(12): 931-933, illus. December 1933.

McCall, M. A. An Outlook. Jour. Amer. Soc. Agron. 25(12): 775-778. December 1933. (Presidential address presented at the 26th annual meeting of the American Society of Agronomy in Chicago, Ill., November 1933.

Nelson, E. M., Hurd-Karrer, A. M., and Robinson, W. O. Selenium as an Insecticide. Science n. s. 78(2015): 124. Aug. 11, 1933.

Stadler, L. J. On the Genetic Nature of Induced Mutations in Plants. Internatl. Cong. Genetics, 6th (Ithaca), 1932, Proc. v. 1, p. 274-294. [1932]. (Cooperation between the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.) (Received in 1933)

Tingey, D. C., and Woodward, R. W. A Readily Removable Label Holder for Nursery and Advanced Plats. (Note) Jour. Amer. Soc. Agron. 25(3): 231-233, fig.1. March 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Utah Agricultural Experiment Station.)

Vogel, O. A. A Three-Row Nursery Planter for Space and Drill Planting. (Note) Jour. Amer. Soc. Agron. 25(6): 426-428, fig. 1. June 1933.

Woodward, R. W., and Tingey, D. C. Improved Modification in the Columbia Drill. (Note) Jour. Amer. Soc. Agron. 25(3): 231. March 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Utah Agricultural Experiment Station.)

BARLEY

Elliott, Charlotte, and Johnson, A. G. Basal Glume Rot of Barley. (Abs.) Phytopathology 23(1): 10. January 1933.

Harlan, H. V. Barley Acreage is Increasing Because of Crop Feed Value. Yearbook of Agr. 1933: 190-191. 1933. (Separate No. 1366)

Leukel, R. W., Dickson, J. G., and Johnson, A. G. Effects of Certain Environmental Factors on Stripe Disease of Barley and the Control of this Disease by Seed Treatment, U. S. Dept. Agr. Tech. Bull. 341, 40 pp. February 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Pope, Merritt N. Catalase Activity and Respiration in the Leaves of Growing Barley. Jour. Agr. Research 46(1): 35-40, fig. 1. Jan. 1, 1933.

_____ A Rapid Method for Making Small Grain Hybrids. (Note) Jour. Amer. Soc. Agron. 25(11): 771-772. November 1933.

Shands, R. G., Leith, B. D., Dickson, J. G., and Shands, H. L. Stripe Resistance and Yield of Smooth-Awned Barley Hybrids. Wis. Agr. Expt. Sta. Research Bull. 116, 22 pp., 6 figs. September 1933. (Cooperation between the Division of Cereal Crops and Diseases and the departments of agronomy and plant pathology of the University of Wisconsin.)

Wiebe, G. A. Barley Varieties of California. Jour. Inst. Brew. [London] 39(6): 242-248, illus. June 1933.

CORN

Allen, Ruth F. The Spermatia of Corn Rust, Puccinia sorghi. (Phytopathological Note) Phytopathology 23(11): 923-925, fig. 1. November 1933. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Bryan, A. A. Factors Affecting Experimental Error in Field Plots with Corn. Iowa Agr. Expt. Sta. Research Bull. 163: 244-280. June 1933 (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Dickson, James G., Link, Karl P., and Dickson, A. D. Nature of Resistance of Corn to Seedling Blight. (Abs.) Phytopathology 23(1): 9. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Holbert, J. R., Burlison, W. L., and Johnson, A. G. Portable Refrigeration Chambers for Studying Cold Resistance of Plants in the Field, U. S. Dept. Agr. Circ. 285, 28 pp., 23 figs. September 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Illinois Agricultural Experiment Station and Funk Bros. Seed Co.)

_____ Elliott, Charlotte, and Koehler, Benjamin. Bacterial Leaf Blight of Dent Corn. (Abs.) Phytopathology 23(1): 15-16. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Illinois Agricultural Experiment Station and Funk Bros. Seed Co.)

_____ and Frye, B. C. Bound Water in Leaf Tissues of Heat-Resistant and Heat-Susceptible Inbred Strains of Yellow Dent Corn. (Abs.) Phytopathology 23(1): 15. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Illinois Agricultural Experiment Station and Funk Bros. Seed Co.)

Morris, V. H., and Gerdel, R. W. Rapid Colorimetric Determination of Potassium in Plant Tissues. Plant Physiol. 8(2): 315-319. April 1933. (Cooperation between the Division of Cereal Crops and Diseases and the department of agronomy of the Ohio Agricultural Experiment Station.)

Rand, Frederick V., and Cash, Lillian C. Bacterial Wilt of Corn. U. S. Dept. Agr. Tech. Bull. 362, 31 pp. 2 pls., 2 figs. May 1933.

Richey, Frederick D. Corn Hybrids Result from Crossing Carefully Selected Parent Lines. Yearbook of Agr. 1933: 182-190, figs. 19-22. 1933. (Separate No. 1365)

_____ Corn Culture. U. S. Dept. Agr. Farmers' Bull. 1714, 26 pp., 16 figs. November 1933.

Robinson, Joe L., and Bryan, A. A. Iowa Corn Yield Test. Results for 1932. Iowa Corn and Small Grain Growers' Assoc. Rpt. No. 13, 32 pp., illus. February 1933. (Cooperation between the Iowa Corn and Small Grain Growers' Association and the Farm Crops Section of the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Smith, Glenn M. Golden Cross Bantam Sweet Corn. U. S. Dept. Agr. Circ. 268, 12 pp., 6 figs. March 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

Sprague, G. F. Pollen Tube Establishment and the Deficiency of Waxy Seeds in Certain Maize Crosses. Natl. Acad. Sci. Proc. 19(9): 838-841, figs. 1-2. September 1933.

Stadler, L. J. On the Genetic Nature of Induced Mutations in Plants. II. A Haplo-Viable Deficiency in Maize. Missouri Agr. Expt. Sta. Research Bull. 204, 29 pp., 13 figs. November 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

Stringfield, G. H. Corn Hybrid and Variety Experiments. Ohio Agr. Expt. Sta. 51st Ann. Rpt.: 27-29. [1933] (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

Trost, John F. Comparisons of Hybrids with Native Strains of Corn for Disease Resistance and Yielding Ability. Ind. Corn Growers' Assoc. 33d Ann. Rpt.: 24-28. 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

FLAX

Allen, Ruth F. The Spermatia of Flax Rust, Melampsora lini. (Note) Phytopathology 23: 487. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Dillman, A. C. Chromosome Numbers in Flax (Linum). Science 78 (2027): 409. Nov. 3, 1933.

GRAIN SORGHUM AND BROOMCORN

Kiltz, B. F., Sieglinger, John B., Osborn, W. M., Barnes, B. F., and Finnell, H. H. Sorghums for Grain and Forage. Okla. Agr. Expt. Sta. Bull. 210, 47 pp., 6 figs. February 1933. (Cooperation between the Division of Dry Land Agriculture, the Division of Cereal Crops and Diseases, and the Oklahoma Agricultural Experiment Station.)

Laude, H. H., and Swanson, A. F. Sorghum Production in Kansas. Kans. Agr. Expt. Sta. Bull. 265, 47 pp., illus. July 1933. (Cooperation between the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.).

Martin, John H. Grain Sorghums Highly Drought Resistant; Many Varieties Grown in U. S. Yearbook of Agr. 1933: 195-198. 1933. (Separate No. 1368)

Rodenhiser, H. A. The Genetics of Sphacelotheca sorghi and S. cruenta. (Abs.) Phytopathology 23(1): 30. January 1933.

_____ and Barnes, B. F. Pathogenecity of Certain Hybrids of Covered and Loose Smuts of Sorghum. (Abs.) Phytopathology 23(1): 30-31. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Division of Dry Land Agriculture.)

Sieglinger, John B. A Dwarf Mutation in Kafir. Jour. Heredity 24(9): 337-338, fig. 2. September 1933.

_____ Inheritance of Seed Color in Crosses of Brown-Seeded and White-Seeded Sorghums. Jour. Agr. Research 47(9): 663-667. Nov. 1, 1933.

Washburn, R. S., and Martin, J. H. An Economic Study of Broomcorn Production. U. S. Dept. Agr. Tech. Bull. 347, 42 pp., 9 figs. February 1933. (The Bureaus of Agricultural Economics and Bureau of Plant Industry in cooperation with the agricultural experiment stations of Illinois and Kansas.)

OATS

Coffman, F. A. Heterosis: specific not General in Nature. Science n. s. 77 (1987): 114-115. Jan. 27, 1933.

Holton, C. S. Inheritance of Chlamydospore Characteristics in Oat-Smut Fungi. (Abs.) Phytopathology 23(1): 16. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

Stanton, T. R. Oat Varieties Have Regional Adaptation; Remain Major Crop. Yearbook of Agr. 1933: 191-195, fig. 23. 1933. (Separate No. 1367)

_____ Navarro Oats. Jour. Amer. Soc. Agron. 25(2): 108-112, fig. 1. February 1933.

_____ and Murphy, H. C. Oat Varieties Highly Resistant to Crown Rust and Their Probable Agronomic Value. Jour. Amer. Soc. Agron. 25(10): 674-683. October 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

RICE

Jones, Jenkin W. Effect of Reduced Oxygen Pressure on Rice Germination. Jour. Amer. Soc. Agron. 25(1): 69-81, fig. 1. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

_____ Effect of Fertilizers on the Yield of Rice Grown in Pots. Jour. Amer. Soc. Agron. 25(8): 548-554. August 1933. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

_____ Effect of Depth of Submergence on the Control of Barnyard Grass and the Yield of Rice Grown in Pots. Jour. Amer. Soc. Agron. 25(9): 578-583. September 1933. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

_____ Inheritance of Characters in Rice. Jour. Agr. Research 47(10): 771-782. Nov. 15, 1933. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Tullis, E. C. Leptosphaeria salvinii, the Ascigerous Stage of Sclerotium oryzae. (Abs.) Phytopathology 23(1): 35. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas, Louisiana, and Texas agricultural experiment stations.)

_____ Ophiobolus oryzinus, the Cause of a Rice Disease in Arkansas. Jour. Agr. Research 46(9): 799-806, fig. 1. May 1, 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Tullis, E. C. Leptosphaeria salvinii, the Ascigerous Stage of Helminthosporium sigmoideum and Sclerotium oryzae. Jour. Agr. Research 47(9): 675-687, figs. 1-6. Nov. 1, 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas, Louisiana, and Texas agricultural experiment stations.)

_____ White Tip Disease of Rice. La. Agr. Expt. Sta. Ext. Press Service [Unnumbered Pub.] 2 pp. [December 1933] (Mimeographed) (Cooperation between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

_____ and Cralley, E. M. Laboratory and Field Studies on the Development and Control of Stem Rot of Rice. Ark. Agr. Expt. Sta. Bull. 295, 23 pp., 6 figs. December 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

_____ Woods, J. B., and Carter, Deane G. Control of Stem Rot of Rice by Burning Stubble. Agr. Engin. 14(8): 218-219, fig. 1. August 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Wyche, R. H., and Beachell, H. M. Varieties of Rice for Texas. Texas Agr. Expt. Sta. Bull. 485, 22 pp., 9 figs. November 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Texas Agricultural Experiment Station.)

WHEAT

Allen, Ruth F. Further Cytological Studies of Heterothallism in Puccinia graminis. Jour. Agr. Research 47(1): 1-15, pls. 1-6. July 1, 1933. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Bayles, B. B. Results from Cooperative Wheat Varietal Experiments in the Western Region in 1932, with Averages for 1931 and 1932. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 50 pp. Feb. 20, 1933. (Mimeographed)

Clark, J. Allen. Yields of Spring-Wheat Varieties Grown in Uniform Plot and Nursery Experiments in the Spring-Wheat Region in 1932 and for 4 Years, 1929 to 1932. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 18 pp. Feb. 18, 1933. (Mimeographed)

_____ Varieties of Durum Wheat. U. S. Dept. Agr. Farmers' Bull. 1706, 13 pp., 6 figs. October 1933.

_____ and Bayles, B. B. Varieties of Common White Wheat. U. S. Dept. Agr. Farmers' Bull. 1707, 22 pp., 11 figs. October 1933.

_____ Bayles, B. B. Varieties of Club Wheat. U. S. Dept. Agr. Farmers' Bull. 1708, 12 pp., 6 figs. October 1933.

_____ and Humphrey, H. B. Inheritance of Stem-Rust Reaction in Wheat. Jour. Amer. Soc. Agron. 25(8): 497-511, figs. 1-3. August 1933.

_____ and Quisenberry, K. S. Distribution of the Varieties and Classes of Wheat in the United States in 1929. U. S. Dept. Agr. Circ. 283, 76 pp., 68 figs. November 1933.

_____ Quisenberry, K. S., and Powers, LeRoy. Inheritance of Bunt Reaction and Other Characters in Hope Wheat Crosses. Jour. Agr. Research 46(5): 413-425, figs. 1-2. March 1, 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Montana Agricultural Experiment Station.)

Cole, John S., and Salmon, S. C. Wheat's Rotation Use is Largely Determined by Crop Competition. Yearbook of Agr. 1933: 153-158. 1933. (Separate No. 1363)

Dickson, James G., and Shands, R. G. Disease-Resistant Wheats Recently Introduced from Russia. (Abs.) Phytopathology 23(1): 8-9. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Faris, J. A. Influence of Soil Moisture and Soil Temperature on Infection of Wheat by Urocystis tritici. (Abs.) Phytopathology 23(1): 10-11. January 1933.

_____ Tapke, V. F., and Rodenhiser, H. A. Wheat Smuts and Their Control. U. S. Dept. Agr. Farmers' Bull. 1711, 17 pp., 10 figs. October 1933.

Fifield, C. C. A Mechanical Method for the Determination of Absorption in Bread Doughs. Cereal Chem. 10(6): 547-554. November 1933.

Flor, H. H. Studies on Physiologic Specialization in Tilletia tritici and T. levis in the Pacific Northwest. Jour. Agr. Research 47(4): 193-213, figs. 1-6. Aug. 15, 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Washington, Oregon, and Idaho agricultural experiment stations.)

Gaines, E. F., and Smith, W. K. Reaction of Varieties and Hybrids of Wheat to Physiologic Forms of Bunt. Jour. Amer. Soc. Agron. 25(4): 273-284, figs. 1-2. April 1933. (Cooperation between the Washington Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Holton, C. S. Differences in Size and Shape of Smut Balls of Two Physiologic Forms of Tilletia tritici. (Abs.) Phytopathology 23(1): 16. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Washington and Oregon agricultural experiment stations.)

Humphrey, H. B. Wheat is Attacked by Rusts, Smuts, and Other Destructive Diseases. Yearbook of Agr. 1933: 161-168, figs. 16-17. 1933. (Separate No. 1364)

Hurd-Karrer, Annie M. Comparative Responses of a Spring and a Winter Wheat to Day Length and Temperature. Jour. Agr. Research 46(10): 867-888, figs. 1-9. May 15, 1933.

_____ Inhibition of Selenium Injury to Wheat Plants by Sulphur. Science n. s. 78(2023): 560. Dec. 15, 1933.

Johnston, C. O., and Miller, E. C. Effect of Leaf-Rust Infection on Water Economy and Growth of Two Wheat Varieties. (Abs.) Phytopathology 23(1): 19-20. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Kiesselbach, T. A., Anderson, Arthur, and Suneson, C. A. Winter Wheat Varieties in Nebraska. Nebr. Agr. Expt. Sta. Bull. 283, 24 pp., 4 figs. July 1933. (Cooperation between the Nebraska Agricultural Experiment Station and the Division of Cereal Crops and Diseases since 1930.)

Levine, M. N., Cotter, Ralph U., and Stakman, E. C. The Production of an Apparently New Variety of Puccinia graminis by Hybridization on Barberry. (Abs.) Phytopathology 24(1): 13-14. January 1934. (Cooperation between the Division of Cereal Crops and Diseases, the Division of Barberry Eradication, and the Minnesota Agricultural Experiment Station.)

McKinney, H. H., and Sando, W. J. Russian Methods for Accelerating Sexual Reproduction in Wheat. Jour. Heredity 24(4): 165-166. April 1933.

_____ and Sando, W. J. Earliness and Seasonal Growth Habit in Wheat as Influenced by Temperature and Photoperiodism. Jour. Heredity 24(5): 169-179, fig. 1 and frontispiece. May 1933.

Pugh, Grace Wineland, Johann, Helen, and Dickson, J. G. Factors Affecting Infection of Wheat Heads by Gibberella saubinetii. Jour. Agr. Research 46(9): 771-797, figs. 1-12. May 1, 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Quisenberry, K. S. Comparison of Winter-Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Hard Red Winter-Wheat Region in 1932. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 35 pp. March 9, 1933. (Mimeographed)

_____ and Clark, J. Allen. Inheritance of Awn Development in Sonora Wheat Crosses. Jour. Amer. Soc. Agron. 25(7): 482-492, fig. 1, July 1933.

Robertson, D. W., Kezer, A., Brandon, J. F., Curtis, J. J., Koonce, D., and Austin, W. W. Wheat Production in Colorado 1926-1932. Colo. Agr. Expt. Sta. Bull. 404, 44 pp., figs. 1-6. September 1933. (Cooperation between the Colorado Agricultural Experiment Station and the Division of Cereal Crops and Diseases from 1907 to 1924 and since September 1930.)

Rodenhiser, H. A., and Clark, J. Allen. Summary of Uniform Spring-Wheat Bunt Nursery, 1933. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unumbered Pub.] 2 pp. Oct. 2, 1933. (Mimeographed)

_____ and Quisenberry, K. S. Summary of Uniform Winter-Wheat Bunt Nursery, 1932-33. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unumbered Pub.] 2 pp. Oct. 12, 1933. (Mimeographed)

Salmon, S. C. Nearly 300 Varieties of Wheat Grown on United States Farms. Yearbook of Agr. 1933: 147-153. 1933. (Separate No. 1362)

Smith, Glenn S., and Clark, J. Allen. Inheritance of Stem-Rust Reaction and Correlation of Characters in Pentad, Nodak, and Akrona Durum-Wheat Crosses. U. S. Dept. Agr. Tech. Bull. 385, 28 pp., 2 figs. October 1933. (The wheat-improvement work at the Langdon Substation, Langdon, N. Dak., is carried on in cooperation between the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

Smith, William K. Inheritance of Reaction of Wheat to Physiologic Forms of Tilletia levis and T. tritici. Jour. Agr. Research 47(2): 89-105, figs. 1-2. July 15, 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

Sprague, Roderick. Association of Cercosporella Foot Rot with a Specific Ecological Area. (Abs.) Phytopathology 23(1): 33-34. January 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon and Washington agricultural experiment stations.)

Stephens, Edmund. Harvesting Varietal Plats of Winter Wheat with a Combine. (Note) Jour. Amer. Soc. Agron. 25(9): 630-631. September 1933.

Suneson, C. A. Our Best Varieties of Winter Wheat and Prospects for Better Ones. Nebr. State Bd. Agr. Ann. Rpt. 1933: 179-183. [1933] (Cooperation between the Division of Cereal Crops and Diseases and the Nebraska Agricultural Experiment Station.)

Talbott, Philip, and Weaver, Ray. An Apparatus for the Convenient and Accurate Delivery of Solutions Used in Experimental Baking Tests. Cereal Chem. 10(4): 367-369, fig. 1. July 1933. (Cooperation between the Division of Cereal Crops and Diseases and the Grain Division of the Bureau of Agricultural Economics.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

GEORGIA

Georgia Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison)(May 1) The weather in April was unusually dry. The total rainfall was 1.71 inches compared with a normal of 4.05. The maximum temperature was 90° on the 4th and 5th, and the minimum 36° on the 13th. The last half of the month has been very cool.

Oats on the Station look promising. There is very little evidence of crown rust, but there is an unusual amount of loose smut in the oat plots although none in the nursery. Fulghum oats are beginning to ripen.

Nearly all the corn-breeding plots were planted April 10 to 12. Soil conditions were good and the germination percentage was high in spite of the cool weather and shortage of rainfall.

ARKANSAS

Rice Branch Station, Stuttgart (Rice Production and Improvement, C. R. Adair)(April 30) Very little rice has been sown in commercial fields at this time. Field work seems to have been delayed awaiting final settlement of the acreage control program. During the past several days a large acreage has been prepared and seeding operations will go ahead rapidly from now on.

The winter-oat crop looks much better than for the past two years. Crown rust is not severe so far this year. It was first noted at a later date and it has not developed as rapidly as last year.

The third annual spring visitors day was held at this Station April 27. The program consisted of observation of the winter oat and winter cover-crop plots, followed by a short speaking program. T. Roy Reid Sr., assistant director in charge of cooperative agricultural extension in Arkansas, and R. E. Short, chairman of the Arkansas rice acreage control committee, gave talks on the Agricultural Adjustment Administration in Arkansas.

The highest temperature in April was 82.5° on the 3d; the lowest, 37.0° on the 29th.

The precipitation was 2.21 inches. The total precipitation since January 1 is 15.44 inches or 2.95 inches less than the average for this period.

H. M. Steece, of the Office of Experiment Stations, and C. J. Bird, Assistant Director in charge of the Cotton Branch Experiment Station at Marianna, Ark., visited this Station in April.

IOWA

Agricultural Experiment Station, Ames (Crown Rust of Oats, H. C. Murphy) (May 2) Weather conditions have been very unfavorable for spring-sown cereals. Seedings were delayed andmade difficult by high winds and a series of violent dust storms. Germination and emergence have been greatly retarded by lack of moisture. The rainfall for April was less than one-fourth of the normal, and the total precipitation this year has been only half that of normal.

The oat-disease nursery this year contains approximately 4,500 rows. Most of the seeds were dehulled and all of them were dusted with smut spores before seeding. Weather conditions since seeding apparently have been nearly ideal for smut infection. All plants in the disease nursery will be subjected to infection with crown and stem rust. Numerous hybrid selections from such crosses as Victoria x Richland are being tested this year. Many apparently are homozygous for resistance to both smuts and both rusts. Their yielding ability has not yet been fully determined.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, E. R. Ausemus) (May 3) The winter was cold but there were few periods of exceptionally low temperatures. There has been less rainfall and snow than normal. Since January 1, a precipitation of 3.10 inches has been recorded - a deficiency of 2.36 inches. The winter wheat in the nursery and field plots at University Farm are completely killed. The killing may be due to drought injury rather than to low temperatures during the past winter. The spring has been cold and dry, with frequent high winds. This has resulted in considerable soil blowing, the air being so full of dust as to obscure the sun.

The weather in April has been unfavorable for small grains. A maximum temperature of 91° was recorded on April 30 and a minimum of 27° on the 27th. The precipitation for the month was 1.57 inches, or 0.66 of an inch below normal.

The sowing of the spring cereal grains has been completed. This work was retarded by cold, windy weather. Spring wheat and oats are emerging with uneven stands owing to lack of moisture for germination.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(April 30) The maximum temperature in April was 89° and the minimum 40°.

A precipitation of 4.19 inches was more than adequate for the needs of all small grains. This, combined with below-normal evaporation and wind velocity, provided favorable conditions for rust. Leaf rust of wheat is doing more damage than any year since the writer has been located at Denton. Crown rust of oats was found in considerable quantities on April 30 and may cause much injury before harvest if conditions continue favorable.

The growth of small grains, with the exception of fall oats, is satisfactory. Heading is about complete on the earlier strains and has been very irregular and stands are thin. Plants apparently have not tillered as they should. Barley is fully headed and promises to be the best crop in years in this section. Heading of wheat started later than usual this year but is proceeding rapidly.

Conditions in the Texas Panhandle continue very poor. Only in local areas is wheat in a favorable condition. Favorable reports are being received from cooperators at Plainview and Spearman. The wheat nursery and varietal test at Amarillo is being injured by drought and some spots are dying.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(April 30) For the past week winter wheat on the Station has shown considerable evidence of drought injury. The ground is spotted, and in some spots the drought injury is severe enough so that yields will be poor even if good rains should be received soon. Some of the earliest varieties are nearly fully headed, and most varieties should start to head soon. Wheat is at a critical stage and the present drought is causing it to deteriorate rapidly.

Temperatures of the latter half of April have ranged from 36° on the 28th to 84° on the 23d and 29th. The total precipitation was 0.39 of an inch, recorded on the 16th and 17th.

KANSAS

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)(April 30) The combination of continued drought and destructive winds in April is developing into a serious situation over a wide area as the month closes. In the last two weeks, wheat prospects have decreased rapidly because of drought and high winds. In some localities green bugs also have been a serious factor.

Much of the land around Manhattan is too dry for the germination of corn. Nearly all the experimental plots and the corn-breeding nursery at the Agronomy Farm are planted, but if it does not rain soon the stand may be spotty.

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(April 30) The weather in March and April was very unfavorable for the development of small grains in the vicinity of Manhattan. No rain of any consequence has fallen in April and several periods of high, drying winds have occurred. The period from April 20 to 25 was one continual dust storm with the wind blowing mostly from the north or northwest. Observations by the U. S. Weather Bureau at Kansas City, Mo., revealed that the air was laden with dust to an altitude of more than 5,000 feet. Temperatures have been rather low and unfavorable for plant growth. There is now a cumulative shortage of rainfall of more than 22 inches for the past two years. The soil is extremely dry and cereals are beginning to show the lack of moisture. This condition extends over most of central, northwestern, and western Kansas. The south central, southeastern, and northeastern parts of the State have had good rains recently.

Despite drought conditions, a heavy infection of mildew is present in nursery sowings of winter wheat. Green bugs also are very numerous and doing much damage. Green-bug damage to winter wheat is reported from many parts of the State. Only traces of leaf rust can be found in nursery and field sowings of winter wheat. Much inoculum is now being taken from the greenhouse to the field in an effort to produce an epiphytotic but conditions are extremely unfavorable. All nursery rows were trimmedand labeled in April. Physiologic-form determinations and other leaf rust experiments in the greenhouse have been completed with the exception of final rust readings on adult F_1 and parental plants.

COLORADO

United States Dry Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(May 1) The weather has continued unusually warm. Winter wheat is rather far advanced for this season of the year, being at least 3 weeks earlier than usual. It is beginning to suffer severely from drought, especially on the earlier seeded plots.

Spring wheat, oats, and barley have emerged to excellent stands and are making satisfactory growth. The first seeding in the date-of-seeding corn experiment was made on April 20. Plots tobe fallowed for next years crops have been plowed.

The maximum temperature for the last half of April was 87° on the 30th, the minimum, 25° on the 19th. The precipitation was 0.39 of an inch.

NEBRASKA

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson)(April 30) Winter wheat in Nebraska is severely threatened by drought. The precipitation in April was only 0.35 of an inch as compared with a normal of 2.45 inches. Excess winter and early spring growth, April wind movement considerably above average, and accumulated precipitation between October 1 and April 1 2.57 inches below normal have all contributed to the present condition, which is generally acute in the entire State. Good ground covering has prevented soil blowing in winter-wheat fields, but many spring-sown fields have blown badly. Spring grains have in many instances failed to emerge, at least to satisfactory stands.

Winter wheat on the Station shows considerable tip burn and yellowing of basal leaves. Early sowings have grown most and show the most injury. Chinch bugs are widespread but do not appear to be more numerous than last year at Lincoln, which is encouraging. Rye will begin heading late this week, or 10 days earlier than normal.

SOUTH DAKOTA

United States Cereal Field Experiments, Redfield (Wheat Improvement, E. S. McFadden)(May 2) The James River Valley of South Dakota is entering the crop-growing season with the greatest depletion of soil moisture in history. The month of April completed the driest 7-month period on record in this part of South Dakota, the total precipitation for the entire period being only 1.98 inches. The subsoil is extremely dry, while moisture in the top soil is inadequate to insure uniform germination of seed grains. Frequent rains during the growing season will be needed to offset the great deficiency in subsoil moisture.

High winds and dust storms are of regular weekly occurrence. At times the air is so full of dust as to make it necessary to abandon all traffic on the public highways. Road ditches in many places are drifted level full of soil. Snow fences in plowed fields are almost completely buried with soil, and are being dug out with road graders. Many fields have been stripped of top soil clear down to the plow sole.

By careful management, it has been possible to retain most of the top soil on the Station except on fallow seeded to winter wheat. Winter wheat in both nursery and field plots has been completely blown out.

Stands of spring wheat in nursery and field plots are somewhat uneven as a result of the dry soil. A hard freeze on the night of April 26 injured grain that had recently emerged.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(May 1) Weather conditions in April were unfavorable for uniform germination of seed. Wheat, oats, and barley were seeded in plots on April 13. The wheat emerged with fairly uniform stands on April 24. The oats and barley emerged 1 day later. Wheat varieties in triple-and single-rod rows replicated three times were seeded April 17 and uneven germination was noted April 29. The single rod-row and 5-foot row nurseries were seeded April 19 and 20, respectively, but have not emerged. Emergence of a scattering of plants in the winter-wheat nursery, sown September 1, 1933, was first noted on April 25.

A very limited precipitation and unusually strong northwest winds resulted in severe soil blowing this spring. Many fields in this locality were materially damaged.

United States Northern Great Plains Field Station, Mandan (Flax Breeding. J. C. Brinsmade, Jr.) (May 1) The drought continued throughout the latter half of April, accompanied by high winds and severe soil blowing. The total precipitation during this period was 0.04 of an inch on April 16. Temperatures have averaged above normal. There has been no opportunity to destroy Russian thistles before seeding flax because there has been insufficient moisture to germinate more than an insignificant portion of the weed seeds near the surface. The surface of the soil is so dry and dusty that it would be inadvisable to sow flax until there is sufficient rainfall to insure prompt germination and check soil blowing.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(May 2) The drought continues, only 0.05 of an inch of rain having fallen the last half of April. There have been no severe dust storms since April 22, although they were of almost daily occurrence for 10 days. Rain is forecast for today.

Very little grain had emerged before the dust storms so that the damage was much less than it would be at the present time.

Spring wheat, oats, and barley varieties have emerged with good stands in the replicated nursery and with rather thin stands in field plots.

The seeding of cereal experiments is nearly finished except for flax, corn, and proso.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)[April 30] Nursery seeding commenced on April 19 and the general yield nursery was sown in the next three days. Seeding of the remainder of the nursery is being spread over about 3 weeks. The spring-wheat varietal plots were sown April 27. Although the spring was early and snow did not remain as late as usual, the month has been characterized by cold winds and dust storms. The temperature rose above 50° on only 3 days of the first 20 days of the month. Moisture is barely sufficient for germination, and it is anticipated that later seedings will have difficulty in sprouting without additional precipitation.

The uniform winter hardiness nursery is slow in showing life because it was covered with about an inch of wind-drifted soil in the later winter. Some of the kernels are sprouted and should emerge soon.

The precipitation for April was 1.25 inches, which is about the normal. The mean temperature was 38.5°, or slightly above normal. The highest temperature of the month was 82° on the 29th, and the lowest, 18° on the 24th.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (May 1) The weather in April was dry and relatively cold. Only 0.24 of an inch of rain was recorded and nearly all of this on April 2. Winter wheat is beginning to show the lack of soil moisture, and perennial grasses have not made their maximum growth. Seedings of spring grain made on fallowed land have emerged with good stands.

The maximum temperature was 75° on the 20th and 22nd, the minimum,,16° on the 3rd and 14th. Below freezing temperatures were recorded on 15 of the 30 days.

IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, Harland Stevens)(April 23) It looks as though we shall have to pay for the nice winter in this part of the country. Although water is coming down the Snake River at present the Aberdeen Springfield tract gets none because of some earlier water rights. The tract has enough water for 40 days' irrigation, so it seems as if things may be a little tough this summer. It is planned to dig a well at the Station to provide water for irrigation if possible.

Most of the nurseries and plots are seeded and growing nicely. As most of the grain was sown a month earlier than last year it looks as though the harvest will be earlier than usual.

(May 1)

All cereal nurseries and plots were sown between March 14 and 30, or one month earlier than in 1932 and 1933. Small grains emerged with good stands and are doing well both at the Station and on farms in the vicinity. Unless the precipitation for the remainder of the growing season is above normal, both dry-land and irrigated crops in the southeastern part of Idaho will be injured materially from lack of moisture.

The mean maximum and minimum temperatures in April were higher than the 22-year averages. Light showers totaled 0.26 of an inch as compared with a normal precipitation of 0.93 of an inch for April.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin)(May 1) Harvesting of wheat in the vicinity of Pendleton probably will begin about the middle of June, whereas the usual time is about July 10. The earlier varieties of fall-sown wheat have been heading for nearly a week. Wheat on some of the drier land in the Columbia Basin will mature 10 days before the crop here.

The spring-sown crops are growing rapidly but show the need of moisture. There will be an unusually wide spread between dates of maturity for winter and spring grains this year.

Warm, dry weather has prevailed during most of April. Only 0.50 of an inch of rain was recorded, compared to a normal for the month of 1.36 inches. The maximum temperature was 91° on April 22 and the minimum was 26° on April 4.

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague)(May 3) In the western half of Oregon the season continues far advanced. The weather in April was warm and there was no rain until the last week but this rain stimulated leaf rust in winter wheat and to some extent in spring-sown wheat. Because of the open winter and the abundant rains followed by the dry weather in April winter grain has a sickly yellow-green appearance, most of the leaves being flecked with yellow. In addition, leaf rust averages 35 percent maximum surface coverage with at least 50 percent of the leaves very heavily rusted. A rust survey in Linn, Marion, Polk, and Benton counties indicates an appreciable reduction in yield. Hessian fly and take-all also are attacking the otherwise stunted winter wheat. Much of the injury attributed to Hessian fly by the local newspapers may be due to take-all, which is prevalent.

In the fields on High Prairie, Cercosporella foot rot was very severe on April 15, but the dry weather throughout most of April saved the crop from worse injury. The loss was over 40 percent in fields near the plot, and the susceptible grain in the plot, which was seeded early, showed nearly complete destruction. Several varieties showed resistance, especially Meister's wheat x rye, which was free of disease on April 15.

In the Alsea Valley plots crown rust had nearly destroyed the late winter seedings of Winter Turf oats, but on April 27 the young seedings of oats, including those in the varietal rust nursery were free of rust. Gibellina foot rot was severe in the spelt seedings for the first time.

The April precipitation at Tygh Ridge was 0.35 of an inch, at High Prairie, 0.68 of an inch, and at the Alsea Valley plots, 1.93 inches. At the latter place the precipitation from Sept. 1, 1933, to May 1, 1934, was 70.1 inches.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(April 30) Crops have been growing rapidly the past month but winds have dried the ground considerably during the past week. The spring small grains are about 12 inches high, showing nearly as much growth as the winter wheat.

All seeding has been done with the exception of grain sorghums. Corn varieties were planted April 30.

The precipitation for the month totaled 1.23 inches, as compared with a 14-year average of 2.29 inches. The maximum temperature was 82° on April 22 and 23. On most days the maximum was over 70°.

The State is confronted with the possibility of a serious drought. The rivers show little increase in flow and the snow below 8,000 feet has disappeared. Timely rains could save the crops as they are at least 4 weeks earlier than normal.

RECD
LIBRARY
JUN 8 - 1934
BUREAU
OF
PLANT INDUSTRY

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

- - - - - - -

Vol. 26 May 25, 1934 No. 7
Personnel (May 11-25) and Field Station (May 1-15)

PERSONNEL ITEMS

Mr. B. B. Bayles left Washington on May 16 to study wheat varieties and hybrids in cooperative breeding nurseries in Arizona, California, Oregon, Washington, Idaho, and Nevada, and confer with officials of the State agricultural experiment stations and others on cooperative wheat experiments, and to observe wheat conditions.

Dr. A. G. Johnson left Washington on May 22 for a 4-week trip in Illinois and Kansas to examine wheat fields for flag smut, record data on experimental seedings, and confer with officials of State agricultural experiment stations on cooperative wheat-disease investigations.

Mr. C. O. Johnston came to Washington on May 13 after having visited localities in Oklahoma, Texas, Louisiana, Georgia, Florida, South Carolina, and North Carolina to take notes on leaf-rust nurseries and arrange for cooperative experiments dealing with the relation between leaf rust, yield, and quality in wheat. He also conferred with officials of agricultural experiment stations in the states named on cooperative investigations with wheat. He was in Washington a week to confer with Department officials and to go over the rust nurseries at the Arlington Experiment Farm.

Miss M. L. Martini left Washington on May 18 for Aberdeen, Idaho, where she will take notes and compile data on cooperative barley experiments.

Dr. K. S. Quisenberry left Washington on May 23 for points in Texas, Oklahoma, New Mexico, Kansas, Nebraska, and Colorado to visit and inspect cooperative wheat experiments at the various State agricultural experiment stations and Federal field stations, and to observe wheat conditions

The headquarters of Dr. G. F. Sprague have been changed from Washington, D. C., to Columbia, Mo., where he will be associated with Dr. L. J. Stadler in the cooperative corn investigations at the Missouri Agricultural Experiment Station. He left Washington on May 12.

Dr. N. E. Stevens recently spent several days in Virginia, North Carolina, South Carolina, and Tennessee in the study of corn diseases.

MANUSCRIPTS SUBMITTED

34. A Cytological Study of Heterothallism in Puccinia sorghi. Ruth F. Allen. May 21. Jour. Agr. Research.

35. Chromosome Numbers in Native American and Introduced Species and Cultivated Varieties of Iris. L. F. Randolph. May 21. American Iris Society Bulletin, Groton, Mass.

36. Fertilization in Puccinia sorghi. Ruth F. Allen. May 23. (Abs.) Phytopathology.

37. Fertilization in Melampsora lini. Ruth F. Allen. May 23. (Abs.) Phytopathology.

38. Preliminary Studies on the Cytogenetics of Tetraploid Maize. L. F. Randolph. May 25. Jour. Agr. Research.

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(May 1) Weather conditions in April were favorable for seeding rice but rather dry towards the end of the month for germination of seed. Temperatures were somewhat lower than in April of last year, the maximum being 86°. The total precipitation of 3.28 inches, was about 1 inch less than in April last year.

On April 19 a thunder storm, accompanied by strong wind and some hail, caused the death of three people, as well as considerable loss of property. The wind assmed the form of a tornado a few miles southwest of Crowley and moved from southwest to northeast for a distance of about 50 miles. Many woak structures were blown to pieces and some homes were badly damaged. There was very little damage to crops as most of them were small.

Seeding operations were delayed several days after this heavy rain but from then on to the end of the month considerable progress was made. If there are no interruptions this phase of the work will be completed during the first week or 10 days in May.

Rices in the early date-of-seeding plots have been submerged.

(N. E. Jodon, May 14)

The rice yield nursery and segregating material was seeded during the last week in April. The yield tests include 103 varieties and selections in quadruplicated 3-row blocks. These were divided into 5 maturity groups with from 10 to 34 strains in each. The division was made on the basis of the time of first heading for convenience in draining prior to harvest, to reduce competition, and for ease in comparing strains maturing at nearly the same time. The hybrid material, comprising about 2,500 selections, was divided in the same way.

In addition, material has been sown for pathological studies and for a statistical study of nursery methods.

As there was no effective rain from April 19 until May 10 seeding was done in dry soil and emergence is still incomplete. Rain amounting to 0.92 of an inch was received yesterday and water is now standing in the fields.

ARKANSAS

Rice Branch Station, Stuttgart (Rice Production and Improvement, C. R. Adair)(May 19) Rice varieties were sown in field plots on May 10 and are now starting to emerge. The nursery rows were sown from May 11 to 14, except for some panicle selections that were seeded May 17. As the seed bed was in very good condition the rice has already begun to emerge. Many of the varieties sown on May 11 and 12 are up with good stands.

A Columbia planter was used in sowing the nursery this spring. It appears to be a marked improvement over the hand method of seeding, which has been used in the past. It also saves a good deal of labor.

The rice plots sown in Poinsett County were inspected yesterday. Satisfactory stands have been obtained.

Most of the commercial rice fields in this section have been sown. In many fields the rice has emerged but has not been irrigated so far, though it probably will need water next week.

MISSOURI

Agricultural Experiment Station, Columbia (Rice Agronomy, B. M. King) (May 8) Seeding of all the rice at the Elsberry experiment field was finished last week with the exception of the last rate-and-date of seeding rows. It went in under excellent soil conditions and with the present warm weather should be up in a short time. Owing to the cool, dry weather in April, however, there probably will be a heavy infestation of weeds, as very few of the weed seeds had germinated at the time of preparing the seed bed.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, E. R. Ausemus)(May 18) The weather of the first half of May was unfavorable for small grains. A maximum temperature of 96° and a minimum of 20° was recorded, the latter on May 3. The precipitation was only 0.19 of an inch. The few local showers were insufficient to germinate all of the small grains sown a month ago and to help the growing plants. There have been several days of high winds, accompanied by soil blowing.

The writer just returned from a trip to the Minnesota Branch Stations, located at Morris and Crookston, Minn. Small grain crops were in good shape in the area between Crookston and Moorhead, owing to two local showers, which enabled seed to germinate and plants to get a good start. Corn planting was in progress and in many localities completed. South of Moorhead by the way of Morris and on into the Twin Cities, small grains are suffering badly from lack of moisture and the hot dry winds. Pastures are short and many farmers are herding cattle and sheep along roadsides or wherever it is possible for the stock to get feed.

TEXAS

Substation No. 4, Beaumont (Rice Production and Improvement, H. M. Beachell)(May 10) Rice seeding was begun on April 25 and finished May 7. This included material for plot technic studies, disease studies, and the field plots. The soil was rather cloddy but most of the seed beds were satisfactory. A rain of 0.18 of an inch on April 27 caused some of the seed to germinate. However, the germination was uneven, as there was no further rainfall until May 8, when another 0.18 of an inch was recorded. Irrigation was begun on May 10, but a rain of 1.32 inches fell before much land had been irrigated. From present indications it is believed that good stands will be obtained.

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(May 15) Favorable weather conditions prevailed during the first half of May. Temperatures were slightly below normal, the maximum being 86° and the minimum, 57°. The rainfall amounted to 2.34 inches, which is above normal. Some hail fell on the 5th but did not do extensive damage at the Substation.

Small grain has made rapid progress. Nearly all varieties of wheat are headed and Nebraska 28 wheat is starting to ripen. All fall-sown barley is ripening fast and will be ready to cut in a few days. Fall-sown oats are ripening and spring-sown oats are heading rapidly. Stem rust of wheat was found in several plots of the varietal test on May 11 but is not widely distributed as yet. Leaf rust continues to damage wheat not only at the Substation but on farms. Many of the Turkey types of wheat that are very susceptible will be almost complete failures because of leaf rust. Crown rust of oats was found on May 1 but apparently had been present for some time before it was discovered. It is now present in nearly all seedings, as conditions have been favorable for its spread.

According to reports, conditions on the Panhandle plains continue to be rather discouraging. A rain of 1.16 inches was recorded at Amarillo for the week ending May 5 and it is hoped this will provide moisture for the nursery grain. The varietal test near Hereford emerged about April 30 following rains the last of March. It will be interesting to note if heading takes place in these varieties emerging at so late a date.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(May 16) Dry weather in this area continues and injury to grain and grass is becoming evident. Until a few days ago small grain was holding its own, though it was making very little growth. Firing and daily wilting are becoming more and more pronounced.

Most of the material in rod rows has not germinated as yet and stands no chance of doing so until an appreciable rain falls.

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(May 17) The situation at this time is more acute than in any previous season during the 20 years since the Station was established. The precipitation for the period from January 1 to May 15 -- 1.32 inches -- is the lowest in the 60 years of weather records at Bismarck. Only 0.04 of an inch has fallen in the past 6 weeks. Temperatures and evaporation have been far above normal during May and wind and dust storms have been of frequent occurrence.

Precautions were taken in preparation of land for flax to leave the surface ridged to lessen the susceptibility to soil blowing. The flax nursery was sown from May 11 to 15 with the exception of the F_2 hybrid material, some miscellaneous selections, and the rust nursery. The last named, is to be sown June 1. The increase plots were sown with a planter on May 16. There is no chance of this seed germinating until rain comes, and there is danger of seed being blown out if high winds occur before then. The flax varietal plots have not yet been sown, and it seems advisable to postpone seeding until June 1, if necessary, in the hope of having rain.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(May 16) A few dust storms in May have caused further drying of the soil, and soil drifting has injured the cereal nursery to some extent as well as field crops in the vicinity.

Stands of field crops are thin owing to lack of germination of all the seed sown.

The precipitation so far in May is 0.17 of an inch. A minimum temperature of 23° on May 13 caused slight injury to field crops from freezing. The maximum temperature has been above 90° on several days.

A few hoppers are hatching out and more expected. Preparations have been made to poison them throughout this section.

Corn varieties were planted today but probably will not germinate until it rains.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(May 17) The early sown material in the nursery and plots is making good growth despite continued shortage of precipitation. All seedings are emerging with good stands so far, but it is feared that space-planted material sown the past week may be unable to emerge without rain. The yield nursery and field plots were frozen to the ground on May 11, when the temperature dropped to 19°, the coldest so far this month. The warmest day was the 8th, when 91° was recorded. Precipitation so far this month has totaled 0.30 of an inch; and the mean temperature for the first half of May was 53.2°, about 3° warmer than the normal mean for the whole month.

Severe dust storms here as elsewhere have blown out a considerable acreage of wheat, but the experimental work has not been much harmed except for breaking and burning of the leaves.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (May 15) Local showers in different parts of central Montana during the last two weeks have been of decided benefit to spring-sown crops. However, the precipitation of 0.44 of an inch recorded at this station was not sufficient to sustain the heavy growth of perennial forages and winter wheat and these crops have been seriously injured by drought. Temperatures have been relatively cool.

The oat nursery seeded April 18 has not emerged to date and some of the varietal plots of oats and barley have germinated very irregularly. The recent rains should improve these stands.

The maximum temperature for the first half of May was 84° on the 5th and the minimum, 30° on the 9th and 12th.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis)(May 18)
Seeding was completed on May 10 and the rice on most of the plots has emerged. Apparently the stands are very good, for the weather has been favorable for germination and early growth. The varietal plots and nursery are now being submerged.

University Farm, Davis (Cereal Agronomy, G. A. Wiebe)(May 7)
The general season is about 3 weeks in advance of last year. Some of the early barley varieties have been cut. The early wheat varieties will be ready to cut in about ten days.

Owing to the drought (30 percent deficient rainfall), a considerable quantity of cereals is being cut for hay this year. There will also be some light weight barley. The prevalence of stripe in barley is small this year; perhaps as a result of the adverse conditions for infection last year.

Considerable leaf rust of wheat has developed this year at University Farm and in farm fields. Stem rust is also making its appearance and may do some damage before the season is over.

JUL 20 1934
BUREAU OF PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

- - - - - - - -

Vol. 26 June 10, 1934 No. 8
Personnel (May 26-June 10) and Field Station (May 16-31)

PERSONNEL ITEMS

Dr. H. B. Humphrey left Washington on May 17 to attend the annual meetings of the Royal Society of Canada in Quebec and to participate in the program of the section devoted to biological sciences. On invitation of the Royal Society, Dr. Humphrey presented an illustrated paper entitled "Cereal-rust parasitism: Its relation to water economy, yield, and quality of the host plant".

On leaving Quebec, Dr. Humphrey went to Ottawa, where he consulted with cereal-crop specialists of the Central Experimental Farm. On his return from Ottawa to Washington, he stopped several hours in Ithaca, N. Y., where he conferred with plant pathologists and others of the experiment-station staff. He returned to Washington on May 29.

Dr. S. C. Salmon left Washington on June 6 to visit points in Nebraska, North Dakota, South Dakota, Minnesota, Wisconsin, Illinois, and Indiana to consult with officials of State agricultural experiment stations and personnel of the Division on the subject of cooperative wheat experiments.

Mr. T. R. Stanton returned on June 9 from a month's trip in the Southern States in the interests of oat investigations.

Messrs. J. W. Taylor and M. N. Pope returned on May 26 from a 4-day trip in Virginia where they visited the agricultural experiment stations at Appomattox, Glade Spring, Fishersville, and Blacksburg. Valuable data on winterkilling of oats and barley were recorded.

RECENT PUBLICATIONS

Varieties of Sorghum in Kansas. A. F. Swanson and H. H. Laude. Kans. Agr. Expt. Sta. Bull. 266, 51 pp., 17 figs. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

A Method of Making Wheat Crosses. V. H. Florell. Jour. Heredity 25 (4): 157-161, figs. 14-15. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California and Idaho agricultural experiment stations.)

Effect of Light on the Development of the Uredial Stage of Puccinia glumarum. Wayne M. Bever. Phytopathology 24(5): 507-516, figs. 1-3. May 1934. (Cooperation between the Idaho Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Experimental Equipment for the Manufacture of Alimentary Pastes. C. C. Fifield. Cereal Chem. 11(3): 330-334, figs. 1-3. May 1934.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

GEORGIA

Georgia Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison)(June 1) The month of May has been the wettest month on record at this Station with the exception of August 1928. The rainfall was 12.42 inches compared with an 11-year average of 2.64 inches. While the rain has interfered with the cultivation of corn, cotton, etc., and with harvesting small grains it has not seriously injured cereal crops at the Station. Of course, on the poorer drained areas throughout the county corn and other crops have been considerably damaged.

The oats nursery was harvested May 21 and 22.

Mr. C. O. Johnston of Manhattan, Kans., visited the Station on May 10 to get readings on the cereal-rust nurseries. There was no crown rust on even the most susceptible oats varieties.

Mr. T. R. Stanton was here May 14 and 15 and helped to make selections from the head-row nursery for continuing the nursery here next year.

VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor) (May 29) Fall-sown small grains on the Farm came through the winter in good condition and prospects for high yields are promising. There was severe winterkilling in the less hardy oat and barley varieties, but stands are excellent in the commonly grown varieties. Vegetative growth is heavy in all small grains and lodging is probable.

The prospects are good for small grains throughout the State of Virginia. Severe winterkilling occurred in the higher parts but spring conditions have been favorable. Barley shows a decided increase in acreage, especially in the Shenandoah Valley. Mildew on barley will cut the yield severely, as the epidemic is the worst observed and appears to be general throughout the State.

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(June 7) The maximum temperature in May was 88° and the minimum, 52°. The total precipitation of 8.33 inches occurred on 10 days.

The first 10 days of May were rather dry and germination of rice was delayed until after the rains. Most commercial fields of rice are up to a good stand. The stands in some fields were reduced by lack of moisture in early May. A few fields were reseeded and others were irrigated to encourage emergence. As a whole, the rice in commercial fields is rather free of weeds and healthy in appearance. Rather low temperatures and north winds several days in the last week of May caused the outer leaves to turn brown in fields that had not been submerged. Very little disease has been noted.

Seeding of rice and cultivated crops was completed on May 5. Rains began several days later and continued until all plots were up to a good stand. Most of the plots had been submerged by the end of May.

Corn in the early seeded plots in the date-of-seeding experiment has been nearly destroyed by the sugar-cane moth borer. The corn varietal plots have been badly damaged by the same insect.

Clovers and grasses in the permanent pasture plots produced excellent pasturage in May. The difference in favor of an application of 2,000 pounds of lime-stone last year was easily detected in the increase growth especially of the white Dutch clover.

ARKANSAS

Rice Branch Station, Stuttgart (Rice Production and Improvement, C. R. Adair)(June 1) All the rice at the Station has been seeded. The stands are very satisfactory except in a few small areas where crust formed after the rain of May 21.

Nearly all commercial fields of rice have been seeded. On many early sown fields the rice has been irrigated and looks well. Late-sown fields are in rather poor condition owing to the dry weather.

All winter oats, both on Station plots and in commercial fields, have been harvested. None has been threshed, but the indications are that yields will be higher than they have been for the past 2 years.

The maximum temperature for May was 95° on May 30 and 31 and the minimum 47° on May 26. The precipitation for May was 4.61 inches, most of which was recorded the first part of the month. There has been no rain since May 21, when 1.22 inches were recorded, but as this was in local showers some sections of the rice area are becoming very dry.

Dr. E. C. Tullis took rust readings on oats during the week of May 14. Mr. T. R. Stanton inspected the winter-oat experiments during the week of May 21.

IOWA

Agricultural Experiment Station, Ames (Crown Rust of Oats, H. C. Murphy) (June 2) The drought situation in Iowa is becoming serious. Beginning a year ago a moisture deficiency began to accumulate, which now amounts to approximately 18 inches. The precipitation in inches since the first of the year has been as follows: January 1.46, February 1.61, March 0.70, April 0.69, May 0.28, or a deficiency of 6.7 inches. Heat records for May were broken by temperatures of 105°. These high temperatures, combined with high wind, severe dust storms, and almost total lack of precipitation have brought about a crisis for the small-grain crop of this State. Should there be ample precipitation beginning June 1, it is doubtful if the production of small grains in Iowa would equal one half that of normal. Many farmers are already plowing up their oats and barley fields and planting soybeans. At Ames late-sown oats in the experimental plots have not emerged because of lack of sufficient moisture for germination, while some of the earliest varieties of those first sown are showing first heading. The stand of these early sown varieties is very uneven and the plants that are now heading are 8 to 10 inches high with miniature panicles and few florets.

It is estimated that one third of the corn planted in Iowa has not yet germinated because of lack of moisture. The corn crop still might be saved with sufficient rainfall from this date to its maturity.

Cereal rusts just do not develop naturally with existing weather conditions. No attempt has been made to initiate artificial epiphytotics because it appears now that it will not be possible to obtain sufficient seed from the hybrid selections now being grown for next year's sowing.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, E. R. Ausemus)(June 2) The drought has continued throughout May, and there have been extremely high temperatures the latter part of the month. Total precipitation for May was 0.21 of an inch; the heaviest shower of 0.12 of an inch was recorded on May 12. This makes a moisture deficiency of 3.46 inches for May and 5.82 inches since January 1. A maximum temperature of 106° was recorded on May 31, the highest on record for May since 1891. The minimum temperature was 40° on May 11.

All crops are suffering from lack of moisture and the exceptionally high temperatures at University Farm. Small grains are in the boot stage at a height of 6 to 8 inches and will be heading in a few days. Corn has emerged with good stands.

The crop situation is serious in most of Minnesota; the northwestern part in the Crookston area reports over an inch of rainfall within the last week. With the continued drought, there is a shortage of food and pastures for stock.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(May 31) The weather conditions in May were for the most part favorable for small grain. A maximum temperature of 97° was recorded on the 31st. The minimum temperature was 49°. The precipitation for the month was 4.24 inches or 0.08 of an inch below normal. The rainfall was well distributed, however, and very little if any grain suffered from lack of moisture in maturing.

Harvest is now in full swing in this section. All fall barley has been cut for two weeks. The earlier varieties of winter wheat in the nursery are being harvested and all will be ready in a few days. Fall oats are nearly all harvested, while spring-sown oats will ripen within a week's time.

Leaf rust and stem rust of wheat have caused considerable loss in experimental grain as well as in grain of this section. Crown rust and stem rust of oats also have done considerable damage.

The annual field day held jointly with the Texas State College for Women was observed on May 18. After a meeting at the college in the morning the women were entertained at the college while the men came to the Substation to look over the experimental work. About 300 farmers attended. Among the guests were Messrs. A. B. Conner, A. D. Jackson, and P. C. Mangelsdorf, of the Texas Agricultural Experiment Station, and Messrs. A. H. Leidigh and Bradford Knapp, of the Texas Technological College, Lubbock.

The writer made a hurried inspection of the cooperative wheat experiments at Amarillo, Hereford, and Plainview on May 25 and 26. Although drought has injured all experiments at Amarillo, yield data will be secured if favorable weather continues until maturity. Wheat in experiments at Plainview was in good condition, while that at Hereford emerged in April and of course will not make a crop at all. At Plainview was observed a field of Fulcaster wheat with approximately 10 percent of loose smut. This variety is reported to have some resistance to smut, and besides, loose smut is not normally present in wheat grown under dry-land conditions.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(June 2) The last half of May warmed up, after some relatively cool weather. As usual, rain is needed. There is an estimated shortage of 15 percent in rainfall, most of it in May.

Some broomcorn was planted on May 24 and emerged to stand May 31.

The maximum temperature for the last half of May was 100° on the 31st and the minimum 54° on the 17th and 25th. The precipitation for the last half of May was 0.79 of an inch, recorded on four days. The total for the month of May was 2.25 inches.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(June 2) Harvesting of early winter wheat varieties in the nursery has begun, and Early Blackhull and Quivira in field plots will be ready to combine in three or four days. Both plots and nursery are quite spotted because of drought, and yields may vary from almost nothing up to 25 to 30 bushels. In some cases a range as great as this may occur within the four plots of a single variety. Yields of winter wheat will be rather low over most of western Oklahoma.

Messrs. K. S. Quisenberry, C. O. Johnston, and Hurley Fellows were at the Station on May 28.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(May 25) The condition of cereal crops in Kansas is extremely variable at this time. More than 4 inches of rain in the vicinity of Manhattan during the first two weeks in May saved a rapidly deteriorating wheat crop, and it looks now as though a fairly satisfactory crop is assured for eastern Kansas. From Manhattan westward wheat is in very poor condition except in occasional localities. In some of the western counties winter wheat on cropped land is already nearly a total loss. In several counties of south-central Kansas spring rains have been sufficient for normal wheat production and the crop is in good condition. In that area leaf rust is reported to be very severe on such varieties as Turkey, Blackhull, and Kanred, while Tenmarq, Kawvalo, and Clark's No. 40 are showing considerable resistance.

The oat crop in most parts of the State is the nearest a failure for many years. Lack of spring rains resulted in poor stands and very little growth. As a consequence the crop is thin, short, and poor. Heading is very irregular and many fields will scarcely head at all. The amount of smut in oats seems to be much smaller than usual.

Both winter wheat and spring wheat leaf-rust nurseries at Manhattan are in good condition. All but late varieties of winter wheat are fully headed and the earlier selections are beginning to ripen. Harvest will be earlier than usual owing to drought. The short stature of plants will greatly aid in rogueing and selecting work. The number and size of leaves on nearly all varieties of wheat seem to the writer to be much smaller than usual.

A light but well-distributed infection of leaf rust has developed in both the agronomy and leaf-rust nurseries. Mildew infection continues to be heavy, but it was greatly reduced in some plots by sulphur dusting.

Fort Hays Branch Station, Hays (Cereal Agronomy, A. F. Swanson)(June 1) The precipitation for May was 1.67 inches, or 1.53 inches below normal, making this the 14th driest May in 67 years and the driest since 1925. The drought is further intensified by the moisture deficiency dating back to September 1932, when the last big rainfall occurred. Since that time the greatest rainfall for several successive days was early in December 1933, when approximately 2.25 inches fell.

Good stands of wheat in the fall and satisfactory stands of spring small grains were secured for the 1934 crop season, but the rainfall has been insufficient to maintain satisfactory growth. Wheat on fallowed land probably will produce 10 or 12 bushels, as the loss was severe the last 4 days when the temperatures stood at 100° or above. Winter wheat on cropped land in the vicinity of Hays will not be harvested, as the height of the crop is only about 8 inches. Throughout the western half of the State, where local showers have fallen, some wheat will be produced. In the south-central and the eastern half of the State the condition of wheat is fairly satisfactory.

Great difficulty is being experienced in getting stands of sorghum or corn in the experimental plantings. Every effort has been made to hold the little moisture that has fallen and to maintain the seed bed in such condition that it will retain whatever rain may come. The date-of-planting sorghum experiment has been continued in spite of the drought. In another experiment fairly good stands of sorghum were obtained when the wheat drill was used in comparison with row planting, but in this instance special tillage and packing were given the drill-planted land. These plantings will be duplicated if rains occur. Because of the drought, planting of the sorghum nursery has not been risked.

COLORADO

United States Dry Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(May 1) The weather in May has been very dry and unusually warm. Small grains have made very little growth. The precipitation for the first 5 months of 1934 has totaled but 3.35 inches, as compared to the 26-year average of 6.52. The maximum temperature for May was 97° on May 28; the minimum, 33° on the 12th. The precipitation was 1.42 inches.

Winter wheat on the Station has headed three weeks earlier than usual. It has been damaged by the hot, dry weather and at best yields will be low. Spring-sown small grains are heading. They are very short and unless rains come soon yields will be poor.

Corn planting has been completed and there are satisfactory stands on most plots. Sorghums will be seeded early in June.

NEBRASKA

Agricultural Experiment Station, Lincoln (Wheat Improvement, C. A. Suneson)(May 31) Very little seed will be recovered in the local winter wheat nursery and all spring grains are beyond hope. There have been no effective rains for 2 months. Temperatures have exceeded 100° on several days. About 10 days ago adult chinch bugs were present in the winter-wheat nursery to the extent of 120 to 150 per square foot. The spring brood is hatching rapidly now, so it is a matter of only a very few days until all small grain will be dead. When that happens the bugs may even be defeated by the drought, for there is no corn or other green grass to attack.

On a 200-mile drive into central and south-central Nebraska yesterday it was noted that, regardless of any rain which may come, oats and winter wheat cannot possibly yield more on the average than the quantity of seed sown. Livestock were held out of most wheat fields too long for maximum pasture value. Pastures are barren and hay scarce. Considerable of the corn acreage has been planted, but little has emerged and this cannot hold on long.

SOUTH DAKOTA

United States Cereal Field Experiments, Redfield (Wheat Improvement, E. S. McFadden)(June 2) The big drought is still unbroken in this part of South Dakota. Only 2.36 inches of rain have been recorded from October to May 31. Only 0.50 of an inch has fallen since April 1. Very unfavorable weather conditions prevailed throughout the month of May, only 0.38 of an inch of rain having been recorded. Temperatures ranged from a minimum of 29° on the 22nd and 24th to a maximum of 113° on the 30th. There were 9 days with temperatures above 100°. The average maximum temperature for a 5-day period between the 16th and 20th was 101.2°; for the last 5 days of the month, 105° Dust storms occurred on 16 days of the month.

The wheat and barley plots on fallow on the station survived until May 30, when the temperature of 113°, together with a high wind and dust storm, killed the plants, roots and all. A great deal of the wheat hybrid material which had been kept alive for about a month by artificial watering was killed by the high temperatures and sand storms during the last 5 days in May. The high temperatures and the dust storms have completely ruined the small-grain crop here in the James River Valley of South Dakota as well as in other large areas of the State.

Preparations are now being made on the Station to sow Sudan grass where the small grains have failed, so as to have something growing on the land to hold it down and possibly materialize into a little feed. A planting of grain-sorghum varieties will be made as soon as a good rain puts the soil in condition for planting.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(June 1) Crops made very little growth in May owing to abnormally high temperatures and low precipitation. Considerable firing of leaves is evident on cereals on the Station and on farms in this area. Many plants have been killed. A good rain soon would still result in fair crop yields.

A majority of the material in nursery rows has not germinated to date owing to lack of moisture.

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(June 1) The drought still continues. The deficiency for the 5-month period, January to May, is 4.28 inches below the average, or about 25 percent of normal. The mean temperature for May was 66°, which is 11° above normal and 5° higher than the previous high record for May of 61° in 1900. Temperatures over 100° were recorded on 3 days with a maximum of 102° May 28 and 30. The minimum temperature was 30° on May 23, accompanied by a light frost that damaged tender plants. No more flax has been sown since May 15, though the seed for varietal plots and other experiments is all ready to sow as soon as there is rain enough for germination.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(May 31) Hot, dry weather has prevailed throughout the month of May. The mean temperature was 62.8°, or about 10° above normal, while the total evaporation was the highest ever recorded here for May.

The precipitation was 0.18 of an inch for May and 1.90 inches since December 31, 1933. The normal precipitation for this 5-month period is 5.25 inches.

The lower leaves of grain are beginning to dry up, making a good test for drought resistance.

Winter rye is heading very short and the first awns of early barley are beginning to appear.

(June 7)

Rain each day of the first week of June, totaling 2.30 inches, has relieved drought conditions in this locality. Similar showers are reported from many points in the State. Cool, cloudy weather has added to the effectiveness of the rain, which, however, has come too late to insure much of a wheat crop, although it will revive pastures and meadows and cause the germination of late-sown feed crops.

The spring nursery is in fairly good condition and field plots are much improved.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(May 31) Nursery and field plots continue to hold their own against continued shortage of precipitation. The frost of 19° on May 11 injured stands in the yield nursery more than was at first evident. Apparently there was not sufficient moisture to enable some plants to recover from the shock. Tillering is light. All but a few rows of the space-planted material have emerged with good stands. Some F_2 hybrids have not emerged except for an odd plant. Nursery and plots have been trimmed. Weeds are slow in starting.

The maximum temperature for May was 107° on Memorial Day, an all-time record for Langdon. The official weather observer in town recorded 111°. Nineteen degrees on the 11th was the minimum for the month, making an 88° range of temperature in a 20-day period. The mean temperature for the month was 58.5°, about 8° above normal. The precipitation for May was 0.48 of an inch Dust storms have continued intermittently throughout the month. Many fields in this section are severely damaged by soil blowing. They would be in worse condition where it not for the snowfall which generally provided sufficient moisture to germinate the crop.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (June 1) The weather in May was very dry and all crops suffered greatly from lack of moisture. Perennial hay crops and winter wheat have been injured much more than have spring-sown crops, as evidenced by the height of these crops at their respective heading or blossoming periods. Winter wheat is heading from 2 to 3 weeks earlier than usual and in some instances is only about 8 inches high. Except for the last week in May air temperatures have not been above normal.

Grasshoppers have hatched out in the native sod and grass plots but the danger to the station plots from this pest will no doubt be lessened by the extensive poisoning campaign of last year.

The precipitation was 0.96 of an inch. The maximum temperature was 91° on the 29th and the minimum 30° on the 9th and 12th.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin) (June 1) The precipitation for May was only 0.28 of an inch, or 1.05 inches less than the average for the period 1930 to 1933. Crops are drying up on the lighter lands and unless rain comes soon there will be poor yields and shriveled grain on the best land.

The winter-wheat crop has attained almost normal height, having made much growth since first beginning to head. Spring grains will be considerably shorter than usual, however.

The maximum temperature for May was 100° on the 28th. Warm days have prevailed throughout the entire month, but the nights have been comparatively cool.

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague)(June 5) The weather in May was moderately dry, and warm at times. The season continues to be 3 weeks or more advanced and the prospect for good crops of cereals daily becomes more remote. Leaf rust in winter wheat and spring-sown wheat reduced the crop in the Willamette Valley from 30 to 50 percent, as estimated this week. Crown rust in oats along the coastal strip of Oregon is very severe. Many fields are almost completely destroyed and few will have good yields. The oats in the Alsea Valley plots will scarcely produce seed. Even the late-sown rust nursery is in part severely rusted. Oats in the Willamette Valley look better but much of the crop was

stunted by Fusarium foot rots. Take-all was found in oats in several places along the Coast.

Stripe rust was found on wheat in moderate amounts in southern Oregon and some was sent in on crested wheat grass by D. E. Stephens of Moro. In general, rusts have been more severe than for many years.

Cercosporella foot rot is severe this year. The plot on High Prairie is scarcely worth harvesting except for a few resistant strains of wheat and some barleys. Telegraphed reports indicate a widespread occurrence of the disease in newly reported areas south of and adjacent to Moscow, Idaho. Cercosporella foot rot is also severe in Union County, Oreg.

Wheat observed on May 24 from Moro south to Redmond needed moisture. All in all, except for parts of southern Oregon and a few fields throughout the Willamette country, the prospects for good yields from any grain are not encouraging.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(June 1) Nearly all the small grains on the experiment farm have headed and show excellent growth and vigor. The average heading date of the individual varieties occurred 20 to 30 days earlier than in the period 1930 to 1933. It has been necessary to irrigate heavily twice during the month and a third application may need to be given in the near future if no rain should come. Good yields should be obtained on the irrigated nursery and plots. The winter-wheat nursery is suffering greatly from the severe drought.

Many of the commercial fields of winter wheat are already complete failures, while only light yields at best can be expected from the better dry farms. Conditions south and west of Salt Lake City are reported still worse. According to reports, even the household water supply is being trucked several miles in some sections.

The precipitation for the month totaled 0.07 of an inch as compared to a 14-year average of 1.66 inches. The deficiency since January 1 is 2.78 inches.

The evaporation for May totaled 4.45 inches while the mean monthly temperature was 62°.

LIBRARY
JUL 20 1934
BUREAU OF PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 June 25, 1934 No. 9
Personnel (June 11-25) and Field Station (June 1-15)

PERSONNEL ITEMS

Dr. A. M. Brunson arrived in Washington on June 19 for a week's stay to confer with personnel of the Division and others on cooperative corn experiments.

Mr. A. C. Dillman spent June 21 and 22 in New Brunswick, N. J., in the interests of cooperative flax experiments.

Mr. C. H. Kyle left Washington June 16 for Tifton and Experiment, Ga., to select and hand pollinate corn and obtain data in cooperative experiments. He will also visit points in Florida, South Carolina, and North Carolina in the interests of cooperative corn investigations.

Dr. M. N. Pope left Washington on June 17 for Madison, Wis., where he will make studies on barley in cooperative experiments. He will also inspect cooperative barley nurseries and farmers' fields in Illinois, Minnesota, Iowa, North Dakota, and South Dakota.

Dr. V. F. Tapke spent June 14 at Kearneysville, W. Va., taking notes on experiments with covered smut of barley.

PROOF ON DIVISION PUBLICATIONS

Effect of Failure of Pollination on Composition of Corn Plants. A. M. Brunson and W. L. Latshaw. Jour. Agr. Research G-901. Galley proof read June 22.

The Use of the Greenhouse in Sorghum Breeding. J. H. Martin. Page proof read June 25.

RECENT PUBLICATIONS

Growing Barley for Malt and Feed. H. V. Harlan. U. S. Dept. Agr. Farmers' Bull. 1732, 14 pp., 1 fig. May 1934. (Received June 14)

Plant Breeding. N. E. Jodon. Rice News 1(7): 24. June 1934.

REMOVAL OF DIVISION OF CEREAL CROPS AND DISEASES TO SOUTH BUILDING

On June 11 and 12, 1934, the Division of Cereal Crops and Diseases was moved from Temporary Building C and the West Wing into quarters on the fifth floor of the sixth wing of the new South Building of the Agricultural Department.

The Division now has not only very satisfactory office quarters but also general laboratories for agronomy, pathology, physiology, and cytology and some individual laboratories. This is the first time in more than 20 years that the entire cereal division has been housed in one building.

Equipment for the pathological laboratories has not yet been installed but when in place should give adequate facilities for research. This also will be the first time that such facilities have been available to Division personnel headquartered in Washington.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, N. E. Jodon)(June 15) The rice nursery was irrigated on May 30 and June 7 after emergence on May 15. Satisfactory stands were secured but blackbirds pulled some plants where seepage water stood on the field. This damage was repaired by transplanting. Some weeding will be required in parts of the nursery that were in fertilizer plots several years ago. The residual effect of the fertilizers stimulates the growth of weeds but not that of rice.

On June 11 leaf spot was found to be fairly prevalent on rice sown March 15 and April 1 in the date-of-seeding plots, and a few spots were found in the plots seeded April 15.

Emergence counts of early and late seedings in a seed-treatment experiment grown for Dr. Tullis, indicates that mercury dusts increased seedling emergence, while formaldehyde dust reduced germination. Hot water had no effect. The results of the first seeding were the more marked.

The maximum temperature has been 92° each day for the past 4 days. This is the highest temperature of the season. The rainfall for the first half of June was 1.74 inches.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(June 15) The first half of June was favorable for planting and starting rowed crops. The precipitation was above average and the temperatures were high enough to insure rapid growth.

About one half of the sorghum and broomcorn experimental area has been planted and is up to stands or emerging. The remainder, consisting mainly of milos, feterita, and late plantings, will be seeded in proper time.

The maximum temperature for the first half of June was 100° on the 8th and 11th; the minimum was 61° on the 12th. The precipitation for the first half of June was 2.04 inches, recorded on three well distributed dates.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(June 15) The winter-wheat plots were combined on June 11 and 12. The yields of the varieties are given in the accompanying table. There were in the plots many bad spots that produced very little grain. Because of this spotting yields varied considerably between replications, and the test this year cannot be regarded as highly satisfactory. The yields indicate that this year was favorable for the earlier maturing varieties. The medium and some of the late varieties headed when drought was most acute. Late rains helped most varieties to fill. Test weights have not been taken but the grain appears to be of fair quality. Nearly all nursery material will be cut and under cover by the end of the week, and nursery threshing will begin next week.

Dr. K. S. Quisenberry worked on the winter-wheat project at the Station from June 8 to 12.

Average yield of winter-wheat varieties grown in quadruplicated 1/47th-acre plots at the Woodward Field Station, 1934.

Variety	C.I.No.	Yield (Bu.per A.)	Variety	C.I.No.	Yield (Bu.per A.)
Early Blackhull	8856	20.7	Turkey Goodwell 102	-	13.8
Quivira	8886	19.0	Blackhull	6251	13.8
Nebraska No. 60	6250	16.1	Cheyenne	8885	13.8 1/
Kawvale	8180	16.1	Kanred x Marquis	10090	13.7
Kharkof	1442	16.0	Harvest Queen	6199	13.7
Tenmarq	6936	15.2	Sibley No. 81	10084	12.3
Fulcaster	6471	14.9	Oro	8220	12.2
Turkey sel.	10016	14.8	Kanred	5146	12.1
Local Turkey	--	14.5	Redhull	11534	12.1
Denton	8265	14.3	Sibley No. 62	11523	11.9
Eagle Chief	8868	13.9	Cooperatorka	8861	11.4

1/ Average of 8 plots.

COLORADO

United States Dry Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(June 15) Rains have been general over northeastern Colorado the past 3 days and it is reported that from 1 to 6 inches have fallen in this area. The rainfall at the Station was 2.75 inches. The rains came as hard showers and consequently there was a heavy run-off. They came too late to benefit winter cereals to any great extent. Winter wheat is ripening and some plots will be ripe enough to harvest next week. This is 3 weeks earlier than normal. Winter wheat on fallow plots will make a fair yield of grain though below average. All cropped plots are almost complete failures.

Spring wheat, oats, and barley on fallow have been benefited by the recent rains and some grain will be harvested. Corn and grain sorghums have emerged to fairly satisfactory stands. Proso and foxtail millet will be seeded next week if weather permits.

The maximum temperature for the first 15 days of June was 97° on the 12th; the minimum was 44° on the 8th.

Dr. Hurley Fellows is investigating dry-land foot rot of wheat on the Station. A good deal has been found, especially on the earlier seeded plots.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(June 16) Rains the first week in June provided sufficient moisture for germination of seed. The flax varietal plots were seeded June 4 immediately after the first effective rain of 0.33 of an inch on June 3 and satisfactory stands emerged on June 11. Seeding of the nursery rows was completed June 6, and most of the flax has emerged or is just coming through, although the stands are still patchy in places. Emergence in nursery rows and increase plots, seeded over a month ago in dry soil, was slower and more irregular on account of the crust that formed on the surface after the rain. Cultivation between the nursery rows and the packer run over the increase plots were effective in breaking the crust.

Moisture conditions are satisfactory at present though more rain will soon be needed. The total rainfall for the first half of June was 1.62 inches, all of which occurred during the first week. The generally cool, cloudy weather during the first half of June was a welcome change after the intense heat in May. The maximum temperature was 89° on June 13 and the minimum, 45° on June 14.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(June 16) Cool, cloudy weather with frequent showers has prevailed the first half of June. This is in marked contrast with the extremely hot, dry weather in May. The precipitation from June 1 to 15 has totaled 2.78 inches.

Crops are much improved as a result of the rains and early varieties of wheat, oats, and barley are heading with very short straw.

Farmers are seeding corn, barley, millet, proso, oats and other crops for forage to offset the scarcity of feed for livestock.

Dr. S. C. Salmon and Glenn S. Smith were visitors at the Substation this week.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (June 16) Two inches of rain were recorded the first week of June and the outlook for small grain crops has changed materially. The winter-wheat fields and the plots on the Station have recovered remarkably and should produce at least average yields. Spring grains are in good condition at present but will need additional moisture the last of this month and the first part of July to produce maximum yields. The earliest varieties of the spring grains are now heading.

A large quantity of poison bran is now being spread throughout this section to control grasshoppers. Unless the insects migrate to the Station from neighboring fields the situation will not be so serious as it was last year. Poison is being spread on grass plots, alfalfa fields, and fence rows to check the grasshoppers that have hatched within the limits of the Station.

The precipitation for the first half of June was 2.02 inches. A maximum temperature of 78° was recorded on the 10th, 11th, and 13th, and a minimum of 36° on the 7th.

OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (June 16) Dry weather prevailed in most of the Columbia River Basin of Oregon for the past 6 weeks. At Moro only 0.07 of an inch of rain was recorded in May on three dates and so far in June only 0.05 of an inch. All crops have suffered severely from drought. In Sherman County there will be a fair winter-wheat crop in the northern part, where the winter precipitation was enough to penetrate fairly deep into the subsoil. On the shallower lands all crops will hardly be worth harvesting. The wheat production in the county will be about 50 percent of normal.

The early winter wheats have been harvested on the Station. Most of the spring barleys will be ready to cut next week.

The highest temperature recorded in May was 96° on the 28th and the highest in June to date 96° on the 10th and 11th. The precipitation recorded since March 1 is 3.02 inches and since Sept. 1, 1933, 9.28 inches.

Dr. H. V. Harlan and Mr. B. B. Bayles were recent visitors. A group of Sherman County farmers inspected the Station on June 9 and a small group of Gilliam County farmers are here today.

SEP 18 1934
BUREAU OF PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 July 10, 1934 No. 10
Personnel (June 26-July 10) and Field Station (June 16-30)

PERSONNEL ITEMS

Mr. J. Allen Clark traveled from Washington to Ottawa, Canada, by automobile on June 22 to confer with the Dominion cerealist and look over the spring-wheat breeding work. En route through Maryland, Pennsylvania, and New York he also observed wheat fields. He returned to Washington June 25.

On June 26 Mr. Clark left for his summer inspection trip in North and South Dakota, Minnesota, Montana, and Wyoming to study cooperative wheat experiments and confer with officials of State agricultural experiment stations.

Mr. A. C. Dillman left Washington on June 30 for a 4 weeks trip in the interest of flax investigations to include inspection of cooperative experiments, study of classification of varieties, and conferences with officials of State agricultural experiment stations on research experiments with flax. His itinerary will cover points in Minnesota, Wisconsin, North and South Dakota, Montana, Wyoming, Oregon, Washington, California, Nebraska, and Kansas.

Dr. Charlotte Elliott spent June 26 at Mineola, N. Y., in conference with Department and State workers on bacterial wilt of sweet corn.

Dr. H. B. Humphrey spent June 29 and 30 at Elk Creek, Grayson County, Virginia, to take readings on uniform rust nurseries. He also noted rust infection of wheat and oat fields en route.

On July 9 and 10 Dr. Humphrey visited State College and Pennsylvania Furnace, Pa., to take readings on uniform rust nurseries and note rust infection of wheat and oat fields in the vicinity and en route. He also conferred with officials at State College on cooperative research.

Mr. H. H. McKinney spent several days at Baton Rouge and Houma, La., early in July to inspect cooperative experiments on corn mosaic and to confer with officials of the State agricultural experiment station.

Dr. H. A. Rodenhiser left Washington July 6 to inspect and study cooperative smut nurseries and to discuss future work with officials of State agricultural experiment stations in Illinois, Iowa, Minnesota, North and South Dakota, Montana, Idaho, Utah, Oregon, and Washington. He will return to Washington about the middle of August.

Drs. S. C. Salmon and J. H. Martin left Washington July 7 for Minneapolis and other points in the Middle West and Northwest for the purpose of locating supplies of seed grain for the Seed Conservation Committee of the Agricultural Adjustment Administration. They will be engaged in this work for several months.

Mr. T. R. Stanton left Washington on July 3 to inspect cooperative experiments with oats and to confer with officials of the State agricultural experiment stations of Iowa, Idaho, Montana, North Dakota, Minnesota, Wisconsin, Michigan, Illinois, New York, and New Jersey. He will return to Washington about the middle of August.

Dr. N. E. Stevens is in the Northeastern States for the month of July engaged in a study of Stewart's wilt disease of sweet corn and expects to make field inspections in New York and in Connecticut, Maine, and other New England States. He has conferred with Department and State workers on bacterial wilt of corn in New York and New Jersey.

Dr. V. F. Tapke left Washington on July 1 for a trip through Maryland, Pennsylvania, New York, and Vermont to collect wheat, oat, and barley smuts and take notes on experiments with covered smut of barley at the Cornell agricultural experiment station, Ithaca. He will also inspect Italian wheats grown by C. A. Reed at Charlotte, Vt., for flag smut and other diseases. Dr. Tapke will be back in Washington about August 1.

PROOF OF DIVISION PUBLICATIONS

Report on a Preliminary Field Survey of the So-called "Alkali Disease" of Livestock. K. W. Franke, T. D. Rice, A. G. Johnson, and H. W. Schoening. U. S. Dept. Agr. Circ. Galley proof read July 2.

Barley Diseases Controlled by Seed Treatment. R. W. Leukel and V. F. Tapke. U. S. Dept. Agr. Misc. Pub. 199. Galley proof read July 3.

Cercosporella Foot Rot of Winter Cereals. Roderick Sprague and Hurley Fellows. U. S. Dept. Agr. Tech. Bull. 428. Galley Proof read July 10.

RECENT PUBLICATIONS

Irregularities in the Inheritance of the Hairy-Neck Character Transposed from Secale to Triticum. J. W. Taylor. Jour. Agr. Research 48(7): 603-617, figs. 1-3. April 1, 1934.

The Association of Cercosporella herpotrichoides with the Festuca Consociation. Roderick Sprague. Phytopathology 24(6): 669-676, figs. 1-2. June 1934. (Cooperation between the Div. of Cereal Crops and Diseases and the Oreg. and Washington agricultural experiment stations.)

Physiologic Specialization in Puccinia glumarum in the United States. Wayne M. Bever. (Phytopath. Note) Phytopathology 24(6): 686-688. June 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

SEED CONSERVATION ON EXPERIMENT STATIONS

As a result of the severe drought there probably will be a demand for seed of standard and other small grain varieties, strains, etc., for sowing on certain stations next spring. It is realized that on most stations reserve stocks usually are carried over, yet there probably will be a definite need for experimental purposes for any seed, although of poor quality, that can be saved this year. The conservation of seed of valuable varieties, selections, hybrids, etc., therefore, should be a major consideration even if in some cases plots or nursery rows may appear to be so poor as not to be considered worth harvesting.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment Stations or other agencies.)

GEORGIA

Georgia Coastal Plain Experiment Station, Tifton (Corn Breeding, H. S. Garrison)(July 3) The weather has been very favorable for hand pollinating corn, which began June 14 and will continue about a week longer. Corn in the breeding plot is very satisfactory but much of the corn on the Station plots was injured by wet weather in May and early June.

Oats from the nursery plots were threshed June 20. The yields have not yet been calculated.

Mr. C. H. Kyle arrived on June 18 to help with the hand pollinating. Dr. M. T. Jenkins visited the Station June 23 and 24.

The rainfall for June was 3.43 inches. The maximum temperature was 99° on June 23 and the minimum, 63° on June 3.

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(July 9) All rice plots have been irrigated. The growth of rice in general is satisfactory. There appears to be very little disease.

Early seeded, early maturing rices in the date-of-seeding experiment have begun to head. These rices are also heading in the early seeded plots sown in water.

Aquatic weeds are rather abundant this season, especially in the plots seeded in water, and in areas once devoted to acid phosphate in the fertilizer plots, which were discontinued in 1928.

Nonirrigated crops have been cultivated. These are not so vigorous as they were last year.

Strong winds on June 16, when a tropical hurricane entered Louisiana and proceeded northward through the central part of the State, caused very little damage to cotton and corn and still less to rice.

The maximum temperature in June was 94°. Temperatures of 90° and above were recorded on 21 days. The precipitation was 4.89 inches. There were two heavy rains in the last half of the month, which aided in irrigation and were beneficial to cultivated crops.

ARKANSAS

Rice Branch Experiment Station, Stuttgart (Rice Production and Improvement, C. R. Adair)(June 30) Most of the rice on the Station looks very well, and that in the nursery rows is doing especially well.

The condition of commercial fields of rice at this time is not very satisfactory. The stands are poor in many fields and some are rather grassy. A substantial percentage of the acreage was sown late this year, several fields having been sown during the past week.

Yields obtained from the winter-oat varieties grown in triplicated 50th-acre plots are shown in the accompanying table. The yields were much higher than those of the past 2 years. The red-oat varieties continued to produce the highest yields.

A maximum temperature of 97° was recorded on several days the latter part of June; the minimum temperature was 65° on the 3rd. The precipitation for June was 6.56 inches, which fell in the first part of the month.

Mr. R. D. Hampton, of the Department of Agriculture of Rhodesia, was a Station visitor for two days in June.

Yield of winter-oat varieties grown in triplicated 50th-acre plots at the Rice Branch Experiment Station, Stuttgart, Ark., 1934, and average yields for 1931-1934

Variety	C. I. No.	Yield (Bu. per acre) 1934	Av. 1931-1934
Ferguson No. 922 (check)	2150	63.4[a]	56.2
Nortex	2382	59.8	52.2
Ferguson No. 71	844	55.9	50.4
Frazier	2381	47.9	41.5
Fulghum (winter)	2500	45.2	45.4
Appler	1815	44.5	44.5
Coker's Norton strain 3	2909	43.2	--
Coker's 32-1	3026	39.8	--
Coker's 33.50	--	37.2	--
Kanota	839	37.2	39.8
Fulghum	708	36.1	39.8
Fulghum (winter)	2499	35.6	42.1
Hairy Culberson	2505	34.4	33.0
Lee[b]	2042	33.9	38.9
Arkansas 12	--	30.5	34.3
Arkansas 1	--	28.8	31.1
Arkansas 1992	--	27.6	33.5
Tennessee Culberson	--	27.1	19.9[c]
Custis	2041	27.1	37.0
Arkansas 19322	--	25.4	32.5
Arkansas 15	--	25.4	26.8
Arkansas 6	--	24.2	31.0
Winter Gray	--	20.3	11.2[c]
Winter Turf	541-4	16.9	26.6
Virginia Turf	--	13.5	7.2[c]

a/ Average of 14 plots
b/ Used as check variety in 1931, 1932, and 1933
c/ Average for 2 years- 1933 and 1934

Agricultural Experiment Station, Fayetteville (Rice Diseases, E. C. Tullis) (July 3) Helminthosporium leaf spot of rice is beginning to appear in Arkansas and Louisiana. Conditions in Arkansas this spring have been more favorable for the development of the disease than for the past few years.

The root knot nematode (Heterodera marioni) was again found during the latter part of June on the Seebree farm near Almyra. This land was "laid out" last year but the nematode apparently lived over on the other hosts, as it was as abundant as it was 2 years ago when first found.

MONTANA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, E. R. Ausemus)(July 2) The small-grain crop situation remains serious throughout most of Minnesota. Good rains occurred over the State in the middle of the month, but drought conditions have prevailed since except for local showers. This is resulting in a shortage of pasture and forage crops. Farmers throughout the drought-stricken area have planted a large acreage of emergency hay and pasture crops. Good crop prospects are reported in the northwestern part of the State near Crookston where there has been sufficient moisture for the crops.

Small grains have headed very short at University Farm and are ripening prematurely because of the drought and the high temperatures. The spring-wheat varieties in the rust nursery are very nearly normal. This material has been watered. A fairly good epiphytotic of stem rust has been obtained by artificial inoculation methods. It has been very hard to get stem rust to develop and spread normally in the field because of the high temperatures and dry weather.

Corn is in good condition and does not appear to be suffering from lack of moisture.

The total precipitation for June was 2.2 inches. A maximum temperature of 102° was recorded on June 26, and a minimum of 48° on June 13.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(June 30) The weather in June was unusually hot and dry. It is the hottest June on record. The maximum temperature was 104° and the minimum 61°. A shower of 0.23 of an inch was the only precipitation recorded and the month is the second driest June on record.

The hot, dry weather and the hot winds were destructive to corn and feed crops not only at the Substation but throughout the State. Corn pollen was killed to such an extent that thereis a poor set of grain. Chinch bugs and drought have almost completely ruined the sorghum crop on the Station.

Small-grain harvest was later than usual this year. Cutting started about the first of the month, but owing to the dry weather grain ripened fast and harvest was complete by the 15th of the month. Drought at maturity, combined with stem rust, reduced the yields of wheat and spring oats materially.

Because of the clear open weather all threshing of experimental field plots was completed by the end of the month and nearly all custom threshing in this community was completed. Yields of oats and wheat were very low although the quality was fair. Both oats and wheat in experimental plots made good yields on the Substation.

The writer harvested the cooperative wheat varietal tests and the experimental plots and nursery at Amarillo, Texas, from June 13 to 27. Wheat throughout the Panhandle is very spotted. Only a few counties have anything like a normal crop. Several counties have been designated as drought counties for Government aid.

The cooperative wheat varietal tests at Spearman and Plainview produced fair yields. Wheat was of excellent quality in the Plainview area. A similar cooperative test at Hereford did not emerge until April and was a failure. The varietal test of 17 varieties at Price Memorial College at Amarillo was injured materially by drought but by cutting off about half of all plots comparable samples were secured. The small-grain nursery at Amarillo made very low yields, some portions of the nursery being too poor even to harvest.

Several small and one large sowing of Tenmarq wheat was made in the Panhandle this season with good success. Mr. R. V. Miller, of the State Department of Agriculture, visited a number of these farms making plans for certification of seed next year.

Dr. K. S. Quisenberry visited the Substation from June 1 to 4 and took notes on the cooperative wheat plots at Amarillo from June 13 to 15. Mr. T. R. Stanton was a visitor at the Substation on June 2 and Mr. C. O. Johnston took rust readings on June 1. Dr. P. C. Mangelsdorf, of the Texas Experiment Station, visited the Substation on June 3.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(June 30) On the night of June 15 there was a hard, dashing rain of 2.46 inches. Sorghums that had just been planted were badly washed or covered. Since then the weather has been hot, and rain is needed.

The sorghums and broomcorn experiments are planted, with the exception of some plots that are to be planted in July. Thinning to stand and cultivation have progressed as the crops have needed this attention.

The maximum temperature for the last half of June was 105° on the 23rd and the minimum 60° on the 18th. The total precipitation for June is 4.50 inches.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(June 30) Nursery threshing has been in progress for the past week and should be completed in 3 or 4 days. No grain weights have yet been taken, but it is apparent that there is considerable variation in yield between replications. The grain of most varieties of winter wheat is of good quality. Only a few varieties in the field plots had test weights less than 60 pounds per bushel. Winter wheat in Woodward County is nearly all cut. Some yields are reported at around 8 bushels an acre.

KANSAS

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)(July 3) The crops picture in Manhattan is rapidly changing for the worse as July opens. The corn crop faces a crisis in the near future if relief does not come soon.

Early corn is tasseling already, so that the drought and sustained high temperatures of the past 2 weeks have come at an unusually unfavorable time. Considerable firing is evident, particularly in the last 2 or 3 days, and each additional hot day from now on will make for rapid deterioration.

Temperatures have been 100° or over on 18 of the 33 days since June 1. The mean temperature for June was 83.6°, or 3.4° above normal.

The precipitation for June totaled 1.89 inches as against a normal of 4.54. The combined precipitation for the 4 months from March to June was 6.89 inches as compared to a normal of 13.24, or only slightly over one half of the expected rainfall.

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)(July 9) As is generally known, the drought in the Middle West has greatly reduced the yield of wheat. It has been interesting to note the effect this drought has had on the two wheat foot rots prevalent in this region - take-all foot rot and dry-land foot rot.

The destructiveness of take-all foot rot is greatly increased by a moist cool spring and an early summer. The opposite of this condition prevailed this year. Certain fields known to have harbored take-all foot rot in the past produced wheat this year practically free from the disease. Only a few lesions were present on the roots. The killing and stunting symptoms in most cases were absent. Therefore very few of the test plots for varietal resistance and the effect of fertilizers were of any value.

In test plots where disease occurred in sufficient abundance for observation, the following readings were made:

Yield of varietal tests (Bu. per acre)

Kanred (check)	6.8
Kanred x Marquis sel. (Kans. No. 2642)	14.1
Tenmarq (C.I.no.10089)	10.7
Kanred (check)	4.5
Marion (Kans. No. 525)	7.3
Kanred (check)	4.0
Iowin (C.I.no.10017)	8.7
Kanred (check)	5.9
Mediterranean (Texas sel. 5933-36)	10.9
Michigan Wonder	12.7
Kanred (check)	4.4
Marion	14.5
Kanred (check)	7.0
Turkey sel. (C.I.no.10016)	24.1
Kanred (check)	12.0
Kanred (check)	8.6
Kanred x Fulcaster sel. 292775	12.8

Satisfactory tests on fertilizers were made in two places. The following yields of Kanred wheat are in grams per 50 feet of row:

Treble superphosphate	473.0
Kanred check, no treatment	198.5
Ammoniated superphosphate 1-52.3-0	537.0
Kanred check, no treatment	113.5

Thorough solidifying of diseased soil by rolling showed considerable promise this year. One satisfactory yield test was secured as follows:

	(Bu.per acre)
Kanred (rolled)	10.8
Kanred (not rolled)	1.8

The dry-land foot rot, which is found in semiarid regions, occurred in great abundance this year. Not only was it present where ordinarily found but in many other regions that are generally humid. Dry-land foot rot was present around Manhattan, Kans., this year, which is accounted for by the fact that the drought of this year caused the ordinarily humid region to resemble a dry-land region.

Detailed observations on dry-land foot rot in the Panhandle of Texas and Oklahoma, in western Kansas, eastern Colorado, and southeastern Wyoming showed, as previous observations have, that a retarted date of seeding is the best remedy for the trouble. Detailed readings made on different varieties showed several of them to be somewhat resistant.

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(July 5) Harvest of winter wheat and spring oats was more than 2 weeks earlier than usual at Manhattan. The winter-wheat rust nursery was all cut and in the shock by June 16 and most of the wheat and oats in the agronomy nursery and at the agronomy farm were cut by the 20th. This extremely early harvest was brought about by a combination of factors including a very mild and early spring, extreme drought, and very high temperatures.

Cereal rusts were nearly absent in the vicinity of Manhattan the latter part of the season. Although a light infection of leaf rust appeared on winter wheat after the rains about the middle of May, further development was stopped short by extremely high temperatures on May 29 and 30. During the first 10 days in June, leaves on wheat and oats dried up rapidly because of combined heat and drought and rust infections practically disappeared. Leaf-rust notes were taken on winter wheats, but infections were so low as to render them of little value.

A trip in Texas and Oklahoma during the period from May 27 to June 2 revealed that an extremely heavy infection of leaf rust of wheat occurred this year in north-central Texas, central Oklahoma, and south-central Oklahoma. This area had abundant rains throughout the spring and crops were very good. In Kansas the total yield of winter wheat apparently will be greater in 1934 than in 1933 because of the unusually good yields in the south-central counties. This seems anomalous when the vast wheat acreage ravaged by drought is considered. In the western part of the State, much wheat either failed to head or was too poor to harvest. Many fields that were harvested yielded only 2 to 5 bushels per acre.

Kansas continues to be gripped by severe drought. At Manhattan, the total rainfall for June was about 2 inches. The drought has been accompanied by extreme heat, many days having maximum temperatures well above 100°. On June 28 the temperature reached 109° and on July 4 the maximum was 111°. Small creeks, ponds, springs, and many wells are dry and the countryside looks parched. Trees, shrubs, and lawns are suffering severely from heat and lack of moisture and spring gardens are nearly total failures. There have now been 30 months of deficient rainfall and no relief seems to be in sight.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, V. C. Hubbard)(July 2) Climatic conditions in June were favorable for crop growth. About eight tenths of the nursery material, sown April 18, did not emerge until June 8 and although stands are satisfactory, uneven emergence has given the nursery a very ragged appearance.

Stem and leaf rust were first noted on June 18. Both are now well distributed in the nursery. About 400 space-planted rod rows of rust-inheritance material is sprayed each evening to encourage further development of rust.

Among Station visitors in June were Secretary of Agriculture Wallace and members of his party and Messrs. R. W. Smith and G. S. Smith and Dr. S. C. Salmon. On July 2, Under Secretary of Agriculture R. G. Tugwell and members of his party and Mr. K. A. Ryerson, Chief of the Bureau of Plant Industry, Drs. L. A. Strong, E. N. Bressman, and Mr. J. A. Clark visited the Station.

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.,)(July 2) A rainfall of over 2 inches the latter half of June maintained satisfactory growing conditions. Prevailing moderate temperatures were also favorable for plant growth. Stands in flax sown in dry soil in the first half of May are very poor. Stands in the flax varietal plots and in the nursery rows sown immediately after the early June rains are excellent. The flax is now about 4 inches tall. The maximum temperature for June was 88° on the 26th and the minimum, 51° on the 20th and 27th. The precipitation was 2.16 inches.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(June 30) Cool weather has prevailed throughout the month of June and showers have been frequent and well distributed. The total rainfall for the month is 3.87 inches, or about 0.8 of an inch above normal.

Crop prospects are much improved and some fields of grain on summerfallow will make a fair crop. Fields that were "stubbled in" are very weedy and the stand poor.

The cereal nursery is in very good condition and should give good yields. In the field plots the stand is uneven, as some of the plants emerged several weeks after the first emergence. Early grains are fully headed.

In the bunt nursery susceptible varieties are quite smutty, while many resistant strains appear to be free from bunt. A few crosses were made this week.

Dr. P. F. Trowbridge and Mr. P. J. Olson visited the Substation June 28 and Messrs. K. A. Ryerson and J. A. Clark were here this evening.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(June 30) Nursery and plots are just coming into first heading at a height of about 18 inches. Leaf rust has been plentiful for nearly 10 days, and some pustules, probably of stem rust of wheat, have been found. No oat rusts have yet been discovered. Reward wheat headed on June 28 in the uniform bunt nursery, showing several bunted heads. Grasshoppers, although very numerous in some nearby localities, are much more scarce in the nursery than in the previous 2 years.

Crop prospects in this section brightened considerably in June. Satisfactory rains have totaled 4.40 inches but despite this the topsoil is now dry and powdery. Pastures were so mature that they will not provide much hay for cutting but will furnish grazing till fall. The weather has not yet been favorable to corn and millet sown on large acreages after the rains early in the month.

MONTANA

Montana Agricultural Experiment Station, Bozeman (Clyde McKee)(July 2) Last year the agronomy department purchased a new Kansas nursery thresher and a new steel plot thresher. Early this spring it has added a new 1821 Toledo automatic scale (dial 250 x 1/4, capacity beam 100 x 25, Tare beam 25 x 2 oz; platform 21 x 29, long column front indication, with special dial chart - pounds and kilograms)

The department has also just completed the construction of an agronomy field house 24 x 60 in size with cement floor, bird and mouse proof, electrically lighted and a new 5 HP, 1750 RPM single phase, 60 cycle motor with which to operate the nursery thresher. The field house is something we have needed for many years and we feel very happy over the new facilities which such quarters will provide for us. We feel that we shall be able to carry on our cooperative work, in which we are both interested, in much better shape.

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(July 1) Prospects for the harvest of small grains are about normal. Fields and plots of winter wheat are ripening rapidly and promise to yield about 15 bushels an acre. Spring grains have headed fairly tall and probably will produce at least average yields provided more rain falls.

The station records show a slight deficiency in rainfall for June, while the average temperature was just equal to the 25-year mean. The rainfall has been spotted throughout central Montana. Local hail storms have taken their toll in some small areas.

The number of grasshoppers on the Station has increased greatly within the last few days, and it may be impossible to save some of the later material from injury.

The maximum temperature was 82° on the 30th and the minimum, 36° on the 7th. The precipitation was 2.70 inches.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward)(July 2) Comparatively cool, cloudy weather prevailed in June. The mean temperature was 63° as compared to 68° in 1933. The precipitation totaled 0.78 of an inch in the form of occasional light showers.

Cereal crops have come through in a much better condition than was expected earlier in the season. The cloudy weather and the extremely cool nights undoubtedly counteracted the drought.

A good deal of the winter wheat is ripe and harvesting will commence in the near future. Uniform winter-wheat nurseries are now being harvested.

Most of the spring cereal nursery has been irrigated 4 times, but because of shortage very little additional water can be obtained.

Barley varieties are generally ripe, but the period from heading to ripening has been at least 10 to 15 days longer than any previous record for other seasons.

Corn varieties are tasseling and show good growth.

The flax nursery is beginning to ripen although yields promise to be reduced this year.

Small grains show considerable growth in height this season. Most of the wheat varieties are over 50 inches, barley varieties from 40 to 50 inches, and the oats average well over 60 inches, one variety being 72 inches tall.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis)(July 2) Weather conditions have been very favorable for the growth of rice. The condition of the crop is somewhat better than normal, stands in most cases being excellent. Fields are not so weedy as in some years. It is not probable that a water shortage will occur, even though there was a light snowfall in the mountains last winter.

The average maximum temperature for June was 85.7°, or slightly lower than normal, but the average minimum temperature of 58.0° was slightly higher than the average. The rainfall for June was 0.48 of an inch or 0.17 of an inch above the average.

This year approximately 110 acres of Calady rice, a medium-grain type developed at the Biggs station, is being grown by farmers in the Sacramento Valley under the California Farm Bureau Pure Seed Plan. At this date the commercial fields of this variety look promising.

The earliest varieties of rice on the Station have started to head but the greater number will not head until about August 1.

LIBRARY
SEP 18 1934
BUREAU OF
PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 July 25, 1934 No.11
Personnel (July 11-25) and Field Station (July 1-15)

PERSONNEL ITEMS

Mr. O. S. Fisher left Washington July 14 for Minneapolis to assist the Seed Conservation Committee of the Agricultural Adjustment Administration in the emergency seed program.

Supt. W. P. Snyder, of the North Platte Substation, of the Nebraska Agricultural Experiment Station, passed away on July 20 from complications following an appendicitis operation on June 24. Mr. Snyder was Superintendent of the North Platte Substation from its establishment in 1904, rounding out 30 years of service in the spring of the current year. During this period he was intimately associated in a cooperative way with many of the men of our Division. His accomplishments in building up and developing the North Platte Substation and the results in agricultural improvement coming from the work of this station are a monument to his service.

PROOF OF DIVISION PUBLICATIONS

Twisted Wheat and Twisted Trees. H. H. McKinney and W. J. Sando Jour. Heredity. Galley proof read July 11.

RECENT PUBLICATIONS

The Use of the Greenhouse in Sorghum Breeding. John H. Martin. Jour. Heredity 25(6): 251-254, figs. 12-13. June 1934.

ADMINISTRATIVE NOTE

Our attention has just been called to the fact that Class 26 of the General Schedule of Supplies for the Fiscal Year 1935 covers not only the needs of the Departments here in Washington but also those of all field activities. This makes it mandatory for our field service to buy from the Schedule all items covered in Class 26. Class 26 includes furniture of all kinds.

H. S. Smith
Jr. Administrative Assistant.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, N. E. Jodon) (July 14) Considerable time was given during the first part of July to a study of pollination methods and crossing. Ten varieties of rice were subjected to short-day treatment in an effort to bring early and late strains into flowering at the same time. Six of the 10 headed within a month. Blue Rose (medium late) and C. I. no. 4700 (very late) headed soon after 81C (very early), while Delitus (early), Fortuna (earlier than Blue Rose), and Rexoro (very late) have not begun to boot.

The nursery has been weeded and the rows have been evened off and staked.

Leaf spot has not yet become seriously prevalent. The appearance of plots and farmers' fields is good.

Rains have delayed cultivation of nonirrigated crops. The maximum temperature has not been above 94°.

The writer visited the Beaumont (Texas) station on July 5 to confer with Mr. Beachell on rice improvement experiments.

MISSOURI

Agricultural Experiment Station, Columbia (Rice Agronomy, B. M. King) (July 14) Crop conditions at Elsberry are as bad as if not worse than those of last year at this time. There has been only one rain (0.95 of an inch) of any benefit to growing crops for the past 3 months. It appears now that corn and soybeans will be almost complete failures. Wheat did very well, however, averaging 26.1 bushels to the acre, as compared with a State average of 13.5 bushels.

A part of the rice is badly infested with nut grass and other types of weeds. A few plots located near wheat were badly damaged by chinch bugs, but on the whole the crop is about normal.

TEXAS

Substation No. 4, Beaumont (Rice Production and Improvement, H. M. Beachell)(July 14) Rice experiments appear satisfactory at this writing. Blue Rose and Early Prolific sown in the replicated field plot test are showing a large number of leaves with whitened tips. Edith and Lady Wright are slightly affected. This condition is not noticed on other varieties and has not been observed in previous seasons at this Substation.

A few of the rice varieties transplanted to 22-inch cylinders, located in a screened cage, to be used for artificial crossing purposes have begun to head. A few plants of each of the 33 varieties included are being limited to 11 hours of sunlight per day for the purpose of hastening date of heading.

All the F_1 plants sent from Washington survived and several have begun to head.

Only 0.68 of an inch of rainfall was recorded in June. For the first 14 days of July, 1.81 inches were recorded.

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(July 15) The dry, hot weather that prevailed in June has continued into July with temperatures considerably above normal. Only 0.03 of an inch of precipitation was recorded for the first half of the month. The maximum temperature was 103°. The mean temperature of 87.8° is 4° above the normal for July.

Threshing of nursery grain was completed during the first part of the month and the data are now being compiled with the view of planning for fall seedings. Field plot threshing was completed in June and records of yields both at Denton and Amarillo are given in the accompanying tables. The quality of the grain is fair to good in nearly all instances. Spring oats were very light because of rust damage.

Owing to the prolonged drought very little plowing has been possible and seed beds for fall seeding have not been prepared. Corn, with the exception of the variety Surcropper, was a complete failure. Cotton also is being materially injured by drought.

Yield of winter-wheat varieties grown at Substation No. 6, Denton, Texas, 1934.

Variety	C. I. no.	T. S. no.	Av. yield Bu. per acre
Denton	8265	9236	22.8
Mediterranean	10086	3015-81	22.6
Do	11587	3015-105-1	20.1
Do	10085	5933-20	21.3
Do	11525	5933-23	24.5
Do	11526	5933-34	22.2
Do	-	5933-38	23.0
White Mediterranean	10023	-	19.7
Sutton	10053	15832	27.1
Fulcaster	6471	7082	15.3
Harvest Queen	6199	15837	11.6
Clark 40	8858	20400	22.1
Kawvale	8180		27.3
Quivira	8886		27.4
Early Blackhull	8856	15838	19.0
Blackhull	6251	7172	17.3
Kanred	5146	11763	23.8
Temmarq	6936	12578	26.1
Kharkof	1442	16830	17.3
Nebraska No. 60	6250	15835	13.6
Turkey sel.	10016	-	15.2

Cooperative Winter Wheat Variety Tests, 1934

Variety	C.I.no.	Price Memorial College, Amarillo, Tex. Potter Co.	C.H.Day Farm Plainview, Texas Hale Co.	R.V.Converse Farm, Spearman, Tex. Hansford Co.	Av. (Bu. per A.)
Kanred	5146	15.2	16.1	18.0	16.5
Blackhull	6251	14.2	17.7	17.2	16.4
Tenmarq	6936	14.6	16.7	16.2	15.8
Cheyenne	8885	13.4	16.0	17.4	15.6
Certified Turkey	--	14.0	14.0	15.6	14.5
Vaughn Turkey	--	12.5	14.5	15.9	14.3
Keliehors Russian	--	12.7	13.3	15.5	13.8
Early Blackhull	8856	10.9	14.8	14.6	13.4
Quivira	8886	10.9	13.9	13.3	12.7
Turkey sel.	10016	13.3	14.6	18.0	14.3
Kawvale	8180	9.9	--	--	--
Denton	8265	12.3	--	--	--
Harvest Queen	6199	11.5	--	--	--
Fulcaster	6471	9.9	--	--	--
Sutton	10053	12.5	--	--	--
Kharkof	1442	13.8	--	--	--
Nebraska 60	6250	12.9	--	--	--

Yield of oat varieties grown in quadruplicated 1/55th-acre field plots at Substation No. 6, Denton, Texas, 1934

Variety	C.I.no.	T.S.no.	Yield Fall sowing (Bu.per A.)	Yield Spring sowing (Bu.per A.)
Nortex	2382	--	71.7	67.9
Frazier	2381	--	54.7	71.5
Winter Fulghum	2498	--	62.3	52.3
Appler 1401-24	--	1401-24	78.8	83.7
Ferguson 922	2150	--	75.8	81.2
Norton 3	2909	--	57.7	59.9
Texas Red Rustproof	2503	1118-69	75.8	81.7
Do	--	1415-12	74.4	88.9
Do.	--	2805-39	75.0	85.9
Do	--	2805-43	77.8	86.9
Do	--	6217-43	77.7	86.0

Yield of fall-sown barley varieties grown in 1/55th-acre field plots at Substation No. 6, Denton, Texas, 1934

Variety	C.I.no.	T. S. no.	Yield (Bu.per acre)
Tenn. Winter	--	15825	52.7
Do	3545	-	43.9
Do.	--	18561	48.5
Wis. Winter	--	15839	43.8
Finley	5901	12576	53.3

United States Dry Land Field Station, Dalhart (E. R. Steen)(July 14)
(Grain sorghum experiments in cooperation with Division of Cereal Crops and Diseases)

Enough moisture was received the latter part of May to justify planting the sorghum varieties. The first in the date-of-planting experiment was planted May 25. A good stand was secured on both sorghum and corn varieties. A satisfactory stand, however, has not been secured on the grain-sorghum nursery. The 'Milo Disease' nursery has not been planted because of continued dry

weather. Thinning has been completed and stand counts have been made. The sorghum varieties and the sorghum nursery were thinned to a spacing of 18 inches. This was done because only about half of the normal rainfall for the first half of the year had been received.

The maximum temperature for the period from July 1 to 14 was 104° on the 10th, 11th, and 13th; the minimum was 61° on the 1st. The precipitation was 0.04 of an inch.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(July 16) The first half of July was hot and dry. Work consisted of thinning sorghums to stand, cultivating, trimming plots, and counting stands. A few of the earliest sorghums are booting but because of the drought cannot yield much grain unless moisture conditions improve soon.

Maximum temperatures of 103° or above have occurred on 11 of the 15 days of July. The maximum so far this month was 109° on the 15th; the minimum was 60° on the 7th. The precipitation was 0.09 of an inch in two measurable showers.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(July 16) The rainfall for the first half of July amounted to 0.96 of an inch. Flax maintained satisfactory growth early in July but has suffered from drought during the past week. The injury is likely to be severe unless adequate rainfall occurs soon. Early varieties are in full bloom and late varieties are just beginning to bloom. The maximum temperature was 95° on July 10 and 13 and the minimum was 42° on July 5.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(July 14) Grain is maturing rapidly owing to hot, dry winds and lack of rainfall. Early oats and barley both in field plots and nursery will be harvested next week.

Because of the thinness of stand and the growth of weeds it was necessary to mow the winter-wheat plots under the winter nursery.

A trace of leaf rust and stem rust is present on susceptible varieties. A good infection of bunt, varying from 50 to 70 percent on susceptible varieties, is present in the smut nursery. Many rows of hybrids are free from bunt.

A few showers occurred early in July but now the soil is very dry again.

Mr. Wallace Butler visited the Substation today and Mr. J. A. Clark is expected July 15 and 16.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(July 16) The drought is again being felt in this section. Although 0.72 of an inch of precipitation has been recorded so far in July, it all fell the first 5 days of the month. In some fields grasshoppers are menacing the crops. The mean temperature, 65.1°, is a little above normal.

Field plots and nursery still look fairly well, but the ground is hard and dry and another week of warm weather without rain undoubtedly will prevent normal plumpness of the grain. All nursery material is fully headed except the late-sown hybrids. Stem and leaf rust of wheat are abundant and are developing rather rapidly, considering the dry weather, but continued lack of rain will hold them in check. Stem rust of oats is very heavy in spots but is not yet generally distributed in the nursery material. Bunt infection in artificially inoculated nurseries is heavier than usual.

Messrs. J. A. Clark, L. R. Waldron, and Wallace Butler visited the Substation the week of July 9.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)(July 16) The maturity of all grains has progressed very rapidly during the last two weeks owing to the combined effect of hot winds and the absence of soil moisture. All winter-wheat varietal plots and most of the rows in the winter-wheat nursery were cut July 13 and 14, which is 2 or 3 weeks earlier than this crop is ordinarily harvested. Yields of winter wheat will range from 10 to 35 bushels per acre in the Judith Basin. Spring wheat is now in an early filling stage and was injured materially by the hot winds of last week.

Only 0.02 of an inch of rain has been received since July 1, and maximum temperatures have ranged from 61 to 91°

RECD LIBRARY SEP 18 1934 BUREAU OF PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 August 10, 1934 No.12
Personnel (July 26-Aug. 10) and Field Station (July 16-31)

PERSONNEL ITEMS

Mr. H. S. Garrison visited the Division the week of July 23 while on a vacation trip.

Dr. E. C. Stakman, of University Farm, spent several days in the Department during the week of July 23.

PROOF OF DIVISION PUBLICATIONS

Carbohydrate and Nitrogen Relations in Wheat Plants with Reference to Type of Growth under Different Environmental Conditions. A. M. Hurd-Karrer and A. D. Dickson. Plant Physiol. Galley proof read July 24.

Selenium Injury to Wheat Plants and Its Inhibition by Sulphur. A. M. Hurd-Karrer. Jour. Agr. Research (G-919). Galley proof read July 26.

Field Experiments with Vernalized Wheat. H. H. McKinney, W. J. Sando, A. F. Swanson, V. C. Hubbard, G. S. Smith, C. A. Suneson, and J. L. Sutherland. U. S. Dept. Agr. Circ. 325. Galley proof read July 27.

Linkage Relations of the A_2a_2 Factor Pair in Maize. M. T. Jenkins. Jour. Amer. Soc. Agron. Galley proof read July 30.

Effect of Stage of Seedling Development upon the Cold Resistance of Winter Wheats. C. A. Suneson and G. L. Peltier. Jour. Amer. Soc. Agron. Proof read July 30.

Cercosporella Foot Rot of Winter Cereals. R. Sprague and H. Fellows. U. S. Dept. Agr. Tech. Bull. 428. Page proof read July 30.

Inheritance of Stem-Rust and Bunt Reactions in Spring-Wheat Crosses. J. Allen Clark. Proc. World's Grain Exhib. and Conf. [Canada]. Galley proof read July 31.

Cereal-Disease Forecasting. H. B. Humphrey. Proc. World's Grain Exhib. and Conf. [Canada]. Galley proof read July 31.

RECENT PUBLICATIONS

The present status of bacterial wilt of sweet corn. Charlotte Elliott. Agr. Ext. Path. Ser. No. 11: 9-11. February 1934. [Mimeographed.]

The Romance of Plant Breeding. J. H. Parker. Kansas State Bd. Agr. [Quart.] Rept. 53(209): 119-130. March 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Keys to Aid in the Identification of the More Important Foot Rots of Winter Grains in the Pacific Northwest. Roderick Sprague. Oreg. Agr. Expt. Sta. Circ. of Inform. No. 99, 4 pp. May 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

The Use of the Greenhouse in Sorghum Breeding. J. H. Martin. Jour. Heredity 25(6): 251-254, figs. 12-13. June 1934.

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF BUDGET AND FINANCE
WASHINGTON, D. C.

August 9, 1934.

CHIEFS OF BUREAUS AND OFFICES:

To insure full circulation in this Department there is reproduced in full below a recent form communication from the Comptroller General:

"COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON

A-11928 July 30, 1934.

TRANSPORTATION REQUESTS REPORTED AS LOST

To the officials of departments and independent establishments, and others concerned:

It has come to the attention that Government transportation requests which have been reported lost or stolen, in accordance with paragraph 36 of Standardized Government Travel Regulations, as amended, approved by the President, January 30, 1934, are, upon subsequent recovery, being used by Government employees after such loss or theft has been reported by this office to representatives of passenger associations with the request that the carriers in their respective territories be notified not to honor such requests.

In order to avoid any misunderstanding, it is requested that when Government transportation requests, the loss or theft of which has been reported to the General Accounting Office as required by the Standardized Government Travel Regulations, supra, have been subsequently recovered, they should be sent immediately to the issuing officer for cancellation.

J. R. McCarl
Comptroller General
of the United States."

Very truly yours,

W. A. Jump

August 11, 1934.

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

We are just in receipt of Class 17 of the General Schedule of Supplies, and it is noted that the purchase of incandescent electric lamps in the field must be made under this contract.

It will be recalled that in the Fiscal Year 1934, the field services of this Department were exempted from purchasing under the contract in less than standard package quantities.

In view of the present contract, it will be necessary for all field service purchases of incandescent electric lamps to be made under Class 17 of the General Schedule of Supplies. It is requested that this be brought to the attention of all of your field men.

Yours very truly,

(Signed) Geo. B. Holmes

Geo. B. Holmes,
Jr. Administrative Assistant.
Property Room, B.P.I.

GBH:hct

NOTE: All types of electric lamps, including automobile headlights, are listed in Class 17 and should be ordered from Washington.

H. S. Smith

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(Aug. 1) The weather in July was about normal. The maximum temperature of 100° on the 23rd is the highest temperature since June 1930. The maximum temperature on other dates did not exceed 94°. The mean average temperature was 81°.

Rains, totaling 7.93 inches, occurred on 15 days. Until the last week in July there was a shortage in the rainfall, and fear had been expressed that irrigation streams might become contaminated with salt water from the Gulf. Over 4 inches of rain fell during the last 5 days. This was general throughout the rice area and sufficient to fill the fields and replenish the streams with fresh water.

Early seeded, early maturing rices are maturing and harvest will begin early in August. The rice crop as a whole is more vigorous than it has been in several years at this season. Leaf-spot disease had increased very little by the end of the month.

Diseased young rice plants were collected by the writer July 16 in a field of rice on Pine Island about 8 miles southwest of Gueydan. The disease was identified as Piricularia by Dr. E. C. Tullis, and by Dr. C. W. Edgerton, of the Louisiana State University.

It does not often attack young plants. The last outbreak noted by the writer in the past 25 years was in July 1919. The disease usually attacks in early July vigorous young plants in fields of rice sown in June. If fields are not flooded many of the plants are killed. In flooded fields the majority of the leaves are killed to the water line.

Dr. E. C. Tullis was at the Station July 20 and 21. Messrs. K. R. Hanchey and M. B. Sturgis, of the Louisiana State University, were visitors on July 31.

ARKANSAS

Rice Branch Experiment Station, Stuttgart (Rice Production and Improvement, C. R. Adair)(July 31) Several of the earlier varieties and strains of rice on the Station are heading. Owing to the extremely hot, dry weather in July it has been necessary for nearly all farmers to pump water continuously on the rice fields. However, because of the reduced acreage, the number of acres under each well is small and it is hoped that no rice will be lost on account of water shortage. Most of the rice looks well. The rice on a few farm fields is heading.

The rainfall for July was 2.41 inches, compared with a 4-year average of 5.84 inches. All of it fell the first and last few days of the month, there being a period of 28 days without precipitation. The maximum temperature for the month was 105° on the 23rd and the minimum 68.5° on the 28th. The maximum temperature exceeded 100° on 9 days.

The American Soybean Growers' Association plans to meet here August 23 and 24.

The annual fall visitors' day at the Station will be held September 6.

Agricultural Experiment Station, Fayetteville (Rice Diseases, E. C. Tullis) [July 26] Very little leaf spot was found on rice in the vicinity of China, Nome, and Devers, Texas. There is, however, a severe infestation on some of the plots at Substation No. 4, Beaumont.

Leaf spot in Louisiana seems to be variable, some fields being much more severely attacked than others. On the whole, the disease seems to be less prevalent than usual.

Leaf spot in Arkansas is in about the same condition as it was a month ago.

Stem rot is appearing on early seedings at the Crowley,(La.) station and nearly mature perithecia of the ascigerous stage were found. This disease has not yet appeared in Arkansas and none was found in Texas.

Some young rice plants from Pine Island, southwest of Gueydan, La., were found to be nearly killed by Piricularia grisea.

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, R. M. Caldwell)(Aug. 3) There was only a trace of cereal rusts throughout the greater portion of Indiana this year. Leaf rust, although generally distributed, seldom exceeded a trace in severity. Only a trace of stem rust of wheat and oats was found in any of the fields inspected. A great majority of the fields were wholly free from stem rust. Crown rust of oats was not found.

Leaf rust of wheat inoculum almost completely failed to come through the winter of 1933-34, probably because of its scarcity in the fall and the severe winter-killing of the host foliage. However, where "starter" inoculum was placed in the wheat-breeding nurseries leaf rust developed abundantly in April and May. Although the extremely dry weather and lack of dews checked rust development on the mature plants and prematurely ripened the leaves, an epidemic of 50 percent severity developed in susceptible plots where inoculum was supplied, while nearby plots on the same farm had only a trace of rust. The situation showed clearly that in certain years the degree of inoculum present in the spring, rather than weather conditions during the growing season, is the chief limiting factor in the production of a leaf-rust epidemic.

Despite the severe drought from March to June, wheat in the rod-row nursery on the dark soils at La Fayette produced higher yields than at any time since 1926, when yield tests were started in connection with the leaf-rust resistance breeding work. All of the 29 varieties and hybrids in the yield test but 1 yielded at rates between 40 and 50 bushels per acre. Test weights in general have varied between 60 and 62.5 pounds per bushel.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(July 31) The severe drought which has prevailed throughout the midwest during the past 2 months continues. The precipitation for the month of July was only 0.05 of an inch and the lowest for July in 22 years. The normal rainfall for the month is 2.11 inches. Temperatures were unusually high, there being 23 days with maximum temperatures of 100° or more. The highest recorded was 109°, which has only been exceeded once in the history of the Substation.

Threshing of small grains was completed in July and a good many data have been compiled for the annual report. All forage crops in this vicinity are failures and cotton is suffering materially from the drought. If rain comes within the next month there will be time for some fall feed crops to be raised.

The writer attended the annual Short Course and Substation Superintendents meeting at College Station from July 31 to August 2.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Aug. 1) The weather of the last half of July continued hot and dry. The late-planted sorghums and broomcorn are withstanding the heat and dryness better than expected. The sorghums and broomcorn that are heading are being badly damaged. Should the drought be broken within the next week or two some crops probably would mature but without rain soon there will be no crops in this area.

Bagging of heads for seed is being done, but it is questionable if anything will result from this work.

The maximum temperature for the last half of July was 113° on the 31st and the minimum, 65° on the 28th. There was no precipitation.

Twenty-four days of July reached a maximum of 100° or over. An index of the heat in July is the average mean temperature for the month of 88.7°, which is the record mean for any month at this station. The total precipitation was 0.09 of an inch.

KANSAS

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson) (Aug. 4) The past month has witnessed the culmination of the most devastating drought since Kansas was settled. Corn is a complete failure in most sections of the State. Even sorghums are dying in some fields. Pastures are burned and bare. Alfalfa has stood still for the last month, although the second crop is producing good seed where not cut for hay. Creeks, springs, and wells have dried up to an alarming degree. Between the water shortage and lack of feed, cattle are being dumped on the market at distress prices, in some cases involving the breaking up of valuable breeding herds, each representing a life time of effort.

The isolated field of mass-selected pop corn, the detasseled crossing block for the increase of hybrids, and the yield plots of pop-corn hybrids have been cut for silage and bundle feed. In the yield test plots for dent corn, all open pollinated varieties are a complete failure. Some of the hybrids show remarkable tolerance to heat and drought and a few have set some ears, although pollination is very incomplete. The latest reports from the 3 isolated increase fields of Yellow Selection 1 indicate that 1 has burned past recovery already and it is very doubtful if the other 2 will be much better.

A fire of undetermined origin at the college last night completely destroyed Dennison Hall, which housed the departments of chemistry and physics. The weather records for Manhattan extending over a period of 76 years, as well as many other irreplaceable records, were burned.

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(July 31) Wheat from the leaf-rust nursery was threshed in July and grain notes have been taken on most of it. The winter wheats gave surprisingly good yields, but the spring wheats were almost complete failures. The grain of winter wheat has proved to be fairly plump and appears to have unusually good lustre. The percentage of yellow berry in the hard-seeded

varieties is remarkably high, however. This is a surprising development in view of the extreme drought conditions of the spring growing season.

The wheat crop in the vicinity of Manhattan was practically made by one series of rains in May totaling about 4 inches. The fall, winter, and early spring rains were sufficient to keep the crop in fair condition but added no reserve of moisture to the soil.

Seed is now being prepared for sowing the 1935 winter-wheat leaf-rust nursery. Seed is also being packeted and sent to cooperators in various parts of the United States. The data obtained in 1934 are being worked over and used in the determination of the selections that are to be resown and those that are to be discarded. It seems necessary to rely almost entirely on agronomic notes, such as plant and kernel characters, since the leaf-rust percentages were so low as to be of doubtful value.

July has been a month of extreme heat and drought in the south-central plains area. At Manhattan there were 18 consecutive days, beginning with July 8, on which the maximum temperature was 100° or higher. On July 14 and 15 the maximum was 115°. During this entire period there was no rain except for a few very light sprinkles. The total rainfall for July has been 0.24 of an inch. The corn crop, which had held on fairly well till the first week in July, faded rapidly thereafter and can now be listed as a complete failure. Sorghums have managed to keep alive until recently, but some fields in the vicinity of Manhattan are now rapidly drying up. Some of the sorghums probably will pull through, however. There have been several reports of losses of livestock caused by allowing cattle to eat drought-stunted sorghums.

The water situation in much of Kansas is very serious and much stock is being moved to more favorable locations, shipped, or slaughtered on the farms. Much concern has been expressed about the maintenance of foundation stock of breeding animals. An appeal has been made to the War Department to permit the use of the Fort Riley Military Reservation for carrying the foundation stock of the best herds of the State through the emergency.

Most springs and creeks are dry and many wells have dried up. The larger rivers still have water in them, although it is low. All vegetation has suffered severely from drought. Along the dry streams and ravines in the vicinity of Manhattan hundreds of trees have lost all their leaves. Many of these trees probably are already dead. In the town many trees are being watered by property owners to keep them alive. Many have already died despite efforts to save them. The native trees such as soft maple, elm, ash, cottonwood, and burr oak seem to be showing the least effects of the drought. Exotic species have been severely injured, as have also certain native ones such as iron wood, redbud, and hackberry.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (Aug.1) Drought conditions become more acute every day. The rainfall for the last half of July was only 0.14 of an inch. The wheat varietal plots were harvested satisfactorily with a binder on July 20 and 23, although the wheat was short and full of Russian thistles. The kernels are small and yields will be very low. Sample areas were taken from the oats and barley varietal plots for making yield estimates. The plots, consisting mostly of Russian thistles, were mowed. Wheat that emerged late in nursery rows is nearly all headed. Both stem and leaf rust have developed well on this late material. Rust notes are now being taken while the plants still remain sufficiently green. Mr. Wallace Butler took notes on the rust nursery July 30.

The flax varietal plots were burned to a crisp by drought and high temperatures. A maximum temperature of 107° on July 18 was accompanied by very hot wind. In the increase plots and varietal nursery kept free from weeds on corn ground the flax is satisfactory, although stands are thin and comparative yields will be of little value. Most of the flax nursery on crested wheat grass sod is not worth harvesting. In striking contrast the breeding nursery on flax-sick soil fallowed in 1933 is exceptionally good. The few rows of susceptible varieties have succumbed completely to wilt, and segregation for wilt susceptibility in hybrids is excellent. Most of the varieties are wilt immune or very wilt resistant and show no appreciable drought injury. Mr. A. C. Dillman was here July 19 to 22.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(Aug. 1) Hot, dry weather prevailed in July, except for the first week, during which most of the 0.75-inch of precipitation for the month occurred. The maximum temperature was 105° on the 17th and 18th, and the minimum, 33° on the 6th. Some frost injury was reported from local areas.

The harvesting of cereal experiments is completed at the Substation except part of the smut nursery and late maturing crops. Threshing probably will begin the last of this week.

Some of the official visitors at the Substation the latter half of July were Messrs. C. E. Leighty, J. M. Stephens, J. A. Clark, K. S. Quisenberry, and T. R. Stanton.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(July 31) Nursery and field plots are maturing normally and the quality of seed will be good though yields will not be high. In the nursery, most of the oats and a few common wheats will be ripe this week, but no durums will be harvested till the second week in August. Stem rust on the wheats is not heavy in the yield nursery but is uniform enough to indicate significant differences in susceptibility. Smut notes have been taken on the oats. Bunt infection in the uniform bunt nursery and the local durum bunt nursery is moderately severe and useful data have been taken. In the later sown hybrid nursery, stem rust is developing satisfactorily for inheritance study and selection work. At no time since the frost in May have the wheats in the general nursery been in an extremely critical condition and therefore the yield data should show some interesting comparisons. Ends have been trimmed and tags are now being put on in preparation for harvest. Grasshoppers have been numerous but poisoning has kept them under control.

Crops generally in this section will be poorer than for many years. Grain is ripening prematurely short, and even on fallow stands are poor.

The mean temperature for July was 3° above normal. Temperatures since January have also averaged 3° above the mean. The rainfall in July was 1.69 inches, two thirds of normal. Despite the above-average rainfall in January and June, the accumulated precipitation deficiency in 1934 is 2 inches.

Messrs. H. R. Sumner and Wallace Butler were visitors the last half of July.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin)(Aug.1) The threshing of field and nursery plots was completed July 25. In 1933, threshing was not begun until July 26 and finished about the middle of August. Because of the early season, the June rains were of more benefit to late-maturing wheats, such as Jenkin.

All varieties grown at the Station produced plump grain of good quality but the yields were low, varying from about 20 to 41 bushels per acre. Neighboring fields that ordinarily produce 45 to 55 bushels per acre, averaged about 30 to 35 bushels. Crops were scarcely worth harvesting in some of the shallow-land areas where the precipitation was also limited.

In general, the temperatures in July were cool except for the period from July 24 to 28, when the maximum was 106°.

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (July 30) Harvesting in the Columbia River Basin of Oregon is about completed. Wheat yields were below the expectation of farmers. The quality of the crop is good. Favorable harvest weather prevailed in July. The maximum temperature was 97° on the 26th and the minimum, 42° on the 22d. There was no precipitation.

The following tables show the yields of the winter and spring wheats and of the barley varieties. These yields were obtained with only 9.38 inches of precipitation for the crop year, Sept. 1, 1933, to July 30, 1934, and with a little less than 1 inch for the 3 months of April, May, and June.

Yield in bushels per acre of winter-wheat varieties grown in triplicate 1/20th-acre plots at the Sherman County Branch Station, Moro, Oreg., 1934.

Variety	C. I. no.	Av. Yield (Bu. per acre)	Weight (Lbs. per bu.)
Federation	4734	26.8	58.2
Fortyfold x Hybrid 128 (Nur. no. 942)	--	24.5	59.7
Golden	10063	23.9	57.2
Turkey selection	1[illegible]5	23.8	59.6
Fortyfold x Federation	[illegible]47	23.8	55.9
Blackhull	6251	22.9	59.7
Hybrid 128 x Fortyfold	10056	22.5	58.8
White Odessa x Hard Fed.	10065	22.2	57.2
White Odessa	4655	22.2	60.5
P-1068 x Preston	8244	21.8	58.5
Turkey selection	11424	21.8	58.8
Hybrid 128	4512	21.7	60.3
Marquis x Kanred	11423	21.7	58.9
Turkey (local)	4429	21.3	60.0
Cheyenne	8885	21.2	60.5
Triplet	5408	20.8	58.5
Hybrid 128 x White Odessa (Nur. no. 951)	--	20.3	61.0
Kanred	5146	19.7	58.7
Turkey	1571	19.4	59.4
Turkey selection	10016	18.7	59.5
Kharkof	8249	18.5	59.0
Rio	10061	18.2	60.0
Kharkof	1442	17.6	59.0
Oro	8220	17.4	60.2
Ridit	6703	14.2	57.4
Av.		21.1	

Yield in bushels per acre of spring-wheat varieties grown in triplicate 1/20th-acre plots at the Sherman County Branch Station, Moro, Oreg., 1934

Variety	C. I. no.	Av. Yield (Bu. per acre)	Weight (Lbs. per bu.)
Hard Federation 31	8255	19.8	59.5
White Federation	4981	19.1	56.0
Hard Federation	4733	18.6	56.4
Hard Federation 71	8256	18.5	59.7
Onas	6221	16.9	53.6
Baart	1697	16.2	57.9
Federation	4734	15.9	55.4
Baart x Federation	8254	15.9	57.5
Marquis	4158	13.8	57.4
Pacific Bluestem	4067	11.3	57.6
Av.		16.6	

Yield in bushels per acre of spring-barley varieties grown in duplicate 1/20th-acre plots at the Sherman County Branch Station, Moro, Oreg., 1934

Variety	C. I. no.	Yield (Bu. per acre)
Club Mariout	261	34.8
Peruvian	935	34.8
Flynn	1311-37	34.2
Do	1311-1	31.1
Arequipa	1256	30.5
Trebi	976	27.5
Meloy	1176-3	26.9
Av.		31.4

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat, Roderick Sprague)(Aug. 3) The winter grains in the Alsea Valley plots yielded poorly. Winter Turf (Gray Winter) oats were a total failure owing to rust and foot rot. Of the several winter wheats that were grown this season Fulhio alone yielded over 5 bushels an acre (7.8 bu.). Duplicated 1/70th-acre plots of the winter spelts yielded as follows:

Variety	Date sown	Av. yield (Bu. per acre)
Bearded Winter	Nov. 6	16.4
Red Winter	Do	12.5
Bearded Winter	Oct. 4	8.7
Do.	Do	7.7
Alstroum	Do	5.9

Seed selected from plants surviving the severe winter of 1932-33 failed to outyield the progeny of spring-sown spelt in the fall-sown trials.

The low yields are partly due to the practice of continuing the test plot on the same ground for 3 seasons in order to develop a heavy infestation of Gibellina foot rot. This has been overly successful and the test will be moved to cleaner ground in the fall.

The following grains will be continued in the test: Fulhio wheat, Winter Turf (Gray Winter) oats, and Alstroum and Red Winter spelts. While the spelts have outyieldedwinter oats for the past 3 years, the results of the past 2 years have been rendered inconclusive by the abnormal seasons.

The weather in July was about normal. There was very little precipitation. Among the visitors at Corvallis and vicinity in July were: Under Secretary of Agriculture R. G. Tugwell, Mr. K. A. Ryerson, Chief of the Bureau of Plant Industry, Messrs. E. N. Bressman, A. C. Dillman, C. S. Holton, K. Nakata, H. A. Rodenhiser, and G. A. Wiebe.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (Aug. 1) Harvesting of both the winter- and spring-wheat nurseries was completed in July. Oat and barley nurseries also have been harvested. Threshing of the winter-wheat varieties has been completed but the yields are not yet calculated. It is evident that the yields are much higher than predicted in May. Many commercial fields that were considered burned beyond recovery turned out yields of 17 to 30 bushels an acre. The relatively cool, cloudy weather in June was effective in reviving the dry-farm crops.

Corn and grain sorghums generally look well at Logan, although spots due to soil variability show in these crops as well as in the small grains at all stations of the State visited. Even frequent irrigations have had little effect in overcoming the spotted growth. Flax appears much the same as last year at Logan. The drought continues over the State but crops in the Cache Valley appear better than in any other county observed.

Mr. F. A. Coffman was a Station visitor on July 3, 4, and 5. Messrs. B. B. Bayles, H. A. Rodenhiser, and Wayne Bever visited the Station in the interest of smut investigations. Several winter-wheat fields were visited and smut collections made. The prevalence of the tall smut in contrast to the usual low forms was noted this year. Fields were found in which smut varied from zero to over 50 percent infection.

Mr. Bayles spent a few days checking over all the wheat-improvement work at Logan, Newton, and Avon. In addition he and the writer spent 2 days visiting nurseries in Weber, Salt Lake, Utah, Sanpete, Juab, Carbon, Uintah, and Duchesne counties.

A heat wave with temperatures reaching 100° has prevailed for over a week.

AUG 21 1924

SEED LIBRARY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 August 25, 1934 No. 13
Personnel (Aug. 11-25) and Field Station (Aug. 1-15)

PERSONNEL ITEMS

Messrs. B. B. Bayles and K. S. Quisenberry returned on August 18 from their western field trips.

Mr. A. C. Dillman left Washington August 13 for Minneapolis to assist the Seed Conservation Committee of the Agricultural Adjustment Administration in the emergency seed program.

Mr. T. R. Stanton returned to Washington on August 14 from his field trip in the interests of oat investigations.

RECENT PUBLICATIONS

Wheat Leaf Rust Lowers Milling and Baking Qualities. R. M. Caldwell. U. S. Dept. Agr. Yearbook 1934: 368-369, fig. 111. 1934.

Plant Breeders Make Progress in Developing Disease-Resistant Corn. J. R. Holbert. U. S. Dept. Agr. Yearbook 1934: 285-287, fig. 78. 1934.

Effect of Leaf Rust (Puccinia triticina) on Yield, Physical Characters, and Composition of Winter Wheats. Ralph M. Caldwell, H. R. Kraybill, J. T. Sullivan, and Leroy E. Compton. Jour. Agr. Research 48(12): 1049-1071), figs. 1-4. June 15, 1934. (G-905) (Cooperation between the Division of Cereal Crops and Diseases and the Botany and State Chemist Departments of the Purdue University Agricultural Experiment Station.)

Inheritance of Resistance to Loose Smut and Covered Smut in Some Oat Hybrids. T. R. Stanton, George M. Read, and F. A. Coffman. Jour. Agr. Research 48(12): 1073-1083, figs. 1-2. June 15, 1934. (G-903) (Cooperation between the Division of Cereal Crops and Diseases and the Brooklyn Botanic Garden, Brooklyn, N. Y.)

Experiments on Iarovizing Corn. George F. Sprague. Jour. Agr. Research 48(12): 1113-1120, fig. 1. June 15, 1934. (G-914).

Effect of Failure of Pollination on Composition of Corn Plants. Arthur M. Brunson and W. L. Latshaw. Jour. Agr. Research 49(1): 45-53. July 1, 1934. (G-901) (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

A New Type of Nursery Thresher. O. A. Vogel and Arthur J. Johnson. (Note) Jour. Amer. Soc. Agron. 26(7): 629-630, fig. 1. July 1934. (Cooperation between the Bureaus of Plant Industry and Agricultural Engineering.)

Effect of Stage of Seedling Development upon the Cold Resistance of Winter Wheats. Coit A. Suneson and George L. Peltier. Jour. Amer. Soc. Agron. 26(8): 687-692. August 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Nebraska Agricultural Experiment Station.)

Twisted Wheat and Twisted Trees. H. H. McKinney and W. J. Sando. Jour. Heredity. 25(7): 261-263, fig. 1. July 1934.

Complementary Factors in Barley Giving a Lethal Progeny. G. A. Wiebe. Jour. Heredity 25(7): 273-274, fig. 5. July 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

The Root-Knot Nematode on Rice. E. C. Tullis. Phytopathology 24(8): 938-942, figs. 1-3. August 1934. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Preliminary Note on Another Foot Rot of Wheat and Oats in Oregon. Roderick Sprague. (Phytopathological Note) Phytopathology 24(8): 946-948, fig. 1. August 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

Some Observations on the Use of Selenium and Its Compounds as a Catalyst in the Determination of Protein in Wheat by the Kjeldahl Method. Sidney R. Snider and D. A. Coleman. Cereal Chem. 11(4): 414-430, figs. 1-4. July 1934. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Grain Division, Bureau of Agricultural Economics.)

Chromosome Numbers in Native American and Introduced Species and Cultivated Varieties of Iris. L. F. Randolph. Bull. Amer. Iris Soc. 52: 61-66. July 1934.

NOTE

The attention of employees of this Division is again called to the necessity for obtaining the approval of the Chief of the Bureau for the presentation of papers at meetings anywhere in the field.

SEEDING PANICLE ROWS WITH THE NEW COLUMBIA PLANTER

C. Roy Adair, junior agronomist, Division of Cereal Crops and Diseases

The New Columbia planter is a common and efficient method of seeding small grains in rod-row nurseries. It cannot be used successfully, however, unless there is an ample supply of seed free of chaff and trash. Seed available from panicles or heads, to be sown in individual rows, is limited and is very likely to contain some chaff and trash. For these reasons it is unsatisfactory to use the planter in the usual way. Seeding with the planter insures a firm and uniform covering of the seed and the conservation of the soil moisture and, therefore, is more desirable than opening the rows, sowing, and covering the seed by hand.

By making a few simple changes the planter was used to sow individual panicle rows of rice at the Rice Experiment Station, Stuttgart, Ark., in 1934. The drive chain, sprockets, seeding cylinder, cylinder shaft, hopper and subhopper were removed. An 8-inch funnel was placed in the grain spout so that the grain could be dropped by hand. Two men can operate the planter when used in this way, one to push it and the other to drop the seed. With a little practice the man dropping the seed is able to distribute it quite evenly. There is very little chance for mixture in seeding, as there are no moving parts in which the grain can lodge, and places where grain is likely to lodge can be easily cleaned. This method of seeding also is more efficient than the hand method, for 2 men are able to sow panicle rows with the planter as rapidly as a crew of 4 or 5 men can by hand.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

VIRGINIA

Arlington Experiment Farm, Rosslyn. (Small Grain Agronomy, J.W. Taylor) (Aug. 15)

The precipitation for the period from September 1933 to July 1, 1934, totaled 23.83 inches, or approximately 8 inches below the average. In only 1 month (February) was the rainfall above average. The lowest temperature of the winter was recorded in February, when, on the 9th and 28th, a minimum of -7° F. was recorded. Despite the below-zero temperatures oats made one of its best yields, and barley considerably above average. Wheat also fared well but ran to straw. Missouri Bluestem, a variety with a high-straw yield record, averaged better than 3 tons to the acre.

Yield of winter-wheat varieties grown in triplicated 40th-acre plots and percentage of the nearest 6 check plots of Purplestraw, 1933-34.

Variety	C. I. no.	Av. yield (Bu. per acre)	Percentage of Purplestraw
Red Wonder	5780	35.6	108
Fulcaster	1945	35.3	106
Leap	4823	36.2	105
Dixie	10070	35.1	104
Arlando	10069	34.7	103
Wharton	10071	32.7	100
Mammoth Red	2008	33.2	99
Fultz	1923	33.0	99
Leap (Maryland)	--	33.8	98
Purplestraw	1957	32.5	98
Genesee Giant	1744	31.5	95
Nittany	6882	32.1	95
Trumbull	5657	30.6	94
Gasta	--	29.9	91
Poole	1979	31.1	90
Missouri Bluestem	1912	29.6	90
Shepherd	6163	29.4	89
Dietz	1981	29.0	84
T 47-55	--	27.0	83
V. P. I. 131	10047	27.5	82
Forward	6691	24.4	75
Purplestraw 1/	1915	33.2	-

1/ Average of 17 checks.

Yield of winter-oat varieties grown in triplicated 40th-acre plots and percentage of the nearest 6 check plots of Lee, 1933-34.

Variety	C. I. no.	Av. yield (Bu. per acre)	Percentage of Lee
Randolph	2275	79.9	104
Sel. 699-2011	2499	74.6	97
Sel. 609-202	2498	73.6	96
Coker 52-1	--	70.7	92
Sporen	2506	70.3	91
Custis	2041	68.0	89
Winter Turf	541-4	68.3	89
Culberson	273	65.4	86
Winter Turf	431	63.4	82
Fulghum	708	56.5	74
Lee 1/	2042	77.6	-

1/ Average of 7 plots.

Yield of winter barley varieties grown in 80th-acre plots and percentage of the nearest 6 check plots of Wisconsin Winter, 1933-34.

Variety	C. I. no.	Av. yield (Bu.per acre)	Percentage of Wis. Winter
Esaw	4869	59.5	132
Tennessee Winter	3546	52.5	119
Mechanical Mixture	4115	47.4	107
Alaska	4106	46.4	105
Han River	2163	45.3	101
Tennessee Winter	257	44.4	101
Do	3534	44.4	99
Composite Cross	4116	41.3	92
Composite Cross (winter)	5530	39.8	89
Gaddis (Hooded)	6003	34.9	83
Orel	351	36.2	82
Tennessee Winter (Va. strain)	6034	25.2	60
Beardless 6	2746	23.6	54
Wisconsin Winter 1/	2159	45.0	-

1/ Average of 8 plots.

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, N. E. Jodon)(Aug. 18) The greater number of rice selections are in some stage of heading. The earliest are ripening. Early Prolific is being harvested by growers. Much time has been spent in crossing and most of the combinations desired are being obtained.

The leaf spot is less noticeable than a month ago. It is not so serious as in previous years. Fields in the Mississippi River section are nearly free of it. In this section considerable spotting may be found where growing conditions are not favorable. "White tip" was prevalent on certain varieties.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Aug. 15) In the first half of August there was a continuation of the drought and heat of July.

Some of the grain sorghums planted in the last half of June are starting to head but cannot produce grain unless rains come soon. Most of the broomcorn has failed to head and is drying in the boot. Showers on August 13 and 14, totaling 0.10 of an inch, cooled the air slightly and the maximum temperature fell to 99° on the 14th.

The maximum temperature for the first half of August was 109° on the 1st and 12th; the minimum was 69° on the 14th. The precipitation for this period totaled 0.10 of an inch in two measurable showers.

KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, H. H. Laude)(Aug. 14)

Average yield of winter-wheat varieties grown at the Agronomy Farm, Manhattan, Kans., 1934

Variety	C. I. no.	Kans. no.	Av. yield (Bu. per acre)
Hard Red:			
Prelude x Kanred	11591	2689	36.6
Quivira	8886	2628	36.3
P-1066 x Prelude	11590	2695	35.2
Early Blackhull	8856	483	34.6
Kanred x Marquis	11589	2690	34.3
Turkey (Nebr. 1069)	10016	--	33.8
Blackhull	6251	343	32.9
Kanred x Marquis	10090	2644	31.9
Cheyenne	8885	2667	31.4
Turkey	1558	570	31.3
Kanred x Hard Federation	10092	2673	30.6
Nebraska 60	6250	322	30.6
P-1066-1 x Burbank	10087	--	30.5
Tenmarq	6936	514	30.3
Kanred 1/	5146	2401	30.0
Oro	8220	495	29.9
Cooperatorka	8861	499	29.5
Kanred x Hard Federation	11373	2671	28.8
Kharkof	1442	2591	28.6
Kanred x Hard Federation	10091	2672	28.5
Minturki	6155	2464	28.2
Soft Red:			
Kawvale	8180	2593	35.4
Clark 40	8858	505	33.9
Fulcaster	6471	317	31.6
Harvest Queen	6199	19	25.9

1/ Average of 15 plots.

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)(Aug. 16) The weather for the first half of August has been a continuation of that of July. The maximum temperature was 114° on the 10th and the minimum 64° on the 2nd. The maximum temperature has been 106° or higher every day so far this month. The mean temperature of 94.2° for the period is 17.4° above the 64-year normal mean temperature for August. Rainfall totaling 0.29 of an inch fell on 3 days with measurable precipitation but was insufficient to be of any value. It is cloudy and cooler this morning with some prospect of showers.

Liquidation of lives tock continues at an undiminished pace. The consequences of the shortage of hay, silage, and other roughage for next winter and spring loom as one of the most serious aspects of the drought. Straw from combined wheat fields is being clipped and Russian thistles are being harvested in some areas for forage. Heavy rains in time to assure a good stand of wheat for fall and winter pasture would relieve the situation greatly. Shortages of desirable seed of adapted varieties, particularly in oats and sorghums, are a possibility if prompt action is not taken to set aside remaining stocks for seed purposes.

Fort Hays Branch Station, Hays (Cereal Agronomy, A. F. Swanson)(Aug. 15) The droughtin Kansas this year has been and still continues to be unusually severe, although there has been some relief in local areas for the past week.

At Hays there were 52 days this summer when the maximum temperature exceeded 100°. In July only 7 days showed maximum temperatures lower than 100° and so far in August 14 out of the 15 days showed maximum temperatures higher than 100°. The precipitation is far below normal.

The drought has limited much of the experimental work with sorghums at Hays. Fortunately, sorghum plant-breeding material grown on fallow and certain crosses in the F_3 are showing some early and drought-evading strains. An invasion of chinch bugs in June resulted in a clear-cut segregation as to injury in an F_3 population of the cross Day milo x Club.

Corn is a failure over most of Kansas from the standpoint of grain and most fields are being harvested for dry feed. The sorghums might yet produce a good feed crop if immediate soaking rains should occur. The crop will produce little grain, however, and seed for planting next spring will be very limited. The same applies to oats, barley, and corn.

Kansas produced approximately 85 million bushels of wheat in 1934 as compared to a normal of about 125 million bushels, but the shortage of winter feed for livestock is rather acute. At present, weeds, straw, wheat stubble, and waste grass are furnishing satisfactory subsistence, and all livestock is generally in good flesh. It is the need for winter and spring feed that presents a critical situation. It would be much relieved if rains should soon fall so as to assure wheat pasture. With an open winter and satisfactory growth of wheat, Kansas cattle could be carried through with a limited quantity of dry feed, as was done last winter. The demand for hay from outside the State would be much curtailed if a good growth of wheat could be made available on the fallowed land. The cattle herds of Kansas are being severely culled and marketed, which also will help to relieve the feed situation. Farmers also are making strenuous efforts to make use of all waste products that may have value for feed; for instance, Russian thistles will be extensively used.

While the drought has been most severe, it is remarkable to what extent crop plants and weeds have remained in a dormant but green state, awaiting rain to continue growth. Seemingly, the long drought, which began in May, has changed in some way the composition of most plants so as to enable them to withstand drought much better than has been noted in other years, when the initial growth was made under favorable conditions later followed by drought.

The writer recently returned from a vacation trip that extended into the Pacific Northwest. In the irrigated sections there seemed to be an abundance of hay, mostly alfalfa. On the west coast of Oregon crops were fair to good without irrigation. In other sections, where irrigation was not practiced, the situation was rather acute, except in the Pacific Northwest, where a satisfactory wheat crop was generally obtained.

NORTH DAKOTA

(Cereal Agronomy in absence of V. C. Hubbard, and Flax Breeding, J. C. Brinsmade, Jr.)(Aug. 16)

The only precipitation in the first half of August was a light hail storm on the 13th, which, however, caused no serious damage. The total precipitation was 0.03 of an inch. Acre yields from the wheat varietal plots threshed on August 13 are presented in the following table. Harvest of the wheat nurseries is nearing completion.

Flax in nursery rows is ripening rapidly. Material that ripened prematurely is already harvested. Early varieties in the nurseries on fallow and corn ground where development was nearly normal will be ready to harvest early next week.

triplicate

Average yield and test weight of spring-wheat varieties grown in 50th-acre plots at Mandan, N. Dak., 1934 1/

Variety	C. I. no.	Nursery no.	Yield (Bu. per acre)	Test weight per bu.
Hard Red Spring:				
Ceres	6900	--	3.0	55
Reliance	7370	--	2.8	55
Komar	8004	--	2.8	55
Reliance x Hope	11435	1131	2.7	54
Hope x Ceres	11432	1127	2.7	54
Do	11428	1098	2.6	53
Kota x Marquis	10014	--	2.6	55
Reliance x Hope	11433	1110	2.4	53
Marquis	3641	--	2.3	52
Hope x 1656.97	11471	2421	2.3	54
Kota x Marquis	8385	--	2.2	54
H-44	8177	--	2.2	52
Hope	8178	--	2.0	49
Supreme	8026	--	1.4	51
Durum:				
Kubanka 132	8383	--	2.5	55
Mindum	5296	--	2.1	56
Kubanka	1440	--	2.0	54

1/ Yields of 3 early varieties, Reward, Thatcher, and Comet, not harvested with the binder, are not yet available but will be determined from square yard samples taken from the plots.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(Aug. 15) Harvest and threshing operations have proceeded without interruption from wet weather except for showers on August 6 and 7. On the latter date a hailstorm did some damage in this vicinity although but little at the Substation.

Harvest and threshing are completed except for flax, proso, and wheat hybrids. All yields are very low except those of the cereal nursery grown on fallow.

Mr. J. A. Clark visited the Substation on August 4.

Yields obtained from the uniform spring-wheat nursery are shown in the following table.

Average yield of 25 spring-wheat varieties grown in the uniform nursery at the Dickinson Substation, 1934

Variety	C.I.no.	Nursery no.	Yield (Bu.per acre)
Hope x 1656.48	--	2554	17.2
H-44 x Marquis	--	1552	16.9
Canus	--	C.T.701	16.3
Comet	--	649	15.8
H-44 x Reward	--	R.L.716	15.5
H-44 x Marquis	--	R L.704	15.4
Ceres	6900	--	14.7
Pentad x Marquis	--	R.L.729	14.3
Hope x 1656.97	--	2421	14.2
Hope x Turkey-Florence	11440	--	14.2
Hope x 1656.48	--	2555	13.8
D. C. II-21-48	--	2315	13.7
Ceres x Hope - Florence	--	2553	13.3
H-44	8177	--	13.2
H-44 x Marquis II-26-6	11643	--	12.9
Hope x Ceres	--	1098	12.7
Marquis	3641	--	12.6
Ceres x Hope-Florence	--	2552	12.6
H-44 x Marquis II-26-9	11644	--	12.5
Marquis x Kota 1656.106	--	--	12.4
(D.C. x H-44) x Marquis	--	C.T.304	12.3
Reliance x Hope	--	1154	12.2
Do	--	1121	11.7
Kota x Webster	--	H-209	10.8
Hope x Ridit	11439	--	10.6

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Aug. 15) The weather of the first half of August has been generally favorable to the normal maturity of the grains, and the work of harvest is going forward. Durum varieties in field plots were cut on the 14th, the common varieties being harvested August 10. All common wheats in the yield nursery have been harvested and the durums are now ripe. Considerable head selection work is being done in the more advanced hybrids.

Mr. J. A. Clark has been here since the 7th working over rust inheritance material. Marquis checks in this late-sown space-planted material carry 70 percent of stem rust as a result of natural infection. Bunt notes in the uniform bunt nursery show the highest average infection since the nursery has been grown at Langdon.

Temperatures have averaged slightly above normal, and satisfactory showers have brought 1.56 inches of rain during the first half of August.

ARIZONA

Agricultural Experiment Station, Tucson (Cereal Agronomy, A. T. Bartel) (Aug. 13) The maximum temperature for July was 109°. On July 10 and 11 the temperature was 109°. The mean maximum temperature was 101.0, and the mean minimum, 74.6. The precipitation was 1.16 inches.

There was considerable damage from bacterial wilt in the flax varieties at the Salt River Valley Experiment Farm at Mesa. The injury ranged from a trace in Punjab to fully 50 percent of killed plants in Giza. The yields of the varieties are as follows:

Variety	C. I. no.	Av. yield (Bu. per acre)
Punjab	20	16.7
Buda	--	8.5
Redwing	320	6.9
Bison	389	5.7
Linota	244	5.2
Argentine	280	4.4
Giza	378	3.7

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 September 10, 1934 No. 14
Personnel (Aug. 26-Sept. 10) and Field Station (Aug. 16-31)

PERSONNEL ITEMS

Mr. Jenkin W. Jones left Washington September 2 to visit cooperative rice experiments and breeding nurseries in Missouri, Arkansas, Louisiana, Texas, and California. He will assist in the rice harvest and make crosses and selections in the nurseries. He also will confer with officials of the agricultural experiment stations and superintendents of the rice stations in the States named regarding cooperative rice experiments.

PROOF OF DIVISION PUBLICATIONS

Studies on the Possible Origin of Physiologic Forms of *Sphacelotheca sorghi* and *S. Cruenta*. H. A. Rodenhiser. Jour. Agr. Research. Galley proof read August 27.

Inheritance of Awn Development of Sorghums. J. B. Sieglinger, A. F. Swanson, and J. H. Martin. Jour. Agr. Research. Galley proof read August 30.

A Comparison of the Surface, Furrow, and Listed Methods of Planting Corn. M. T. Jenkins. Jour. Amer. Soc. Agron. Galley proof read September 1.

Physiologic Specialization in *Puccinia coronata avenae*. H. C. Murphy. Tech. Bull. 433. Galley proof read September 1.

DR. K. F. KELLERMAN

Dr. K. F. Kellerman, formerly Associate Chief of the Bureau of Plant Industry, died on August 30. He was associated with the Department of Agriculture for 33 years as scientist and administrator, and played a most important part in the development and organization of many important activities. Doctor Kellerman was born December 9, 1879, at Gottingen, Germany, of American parentage. He came to America with his parents in 1880. He received the B. S. degree from Cornell University in 1900. On graduation he was appointed Assistant Botanist at Cornell, leaving that position to enter the Bureau of Plant Industry in 1901. He received the honorary degree of Doctor of Science from Kansas State College in 1923.

Doctor Kellerman's first service in the Department of Agriculture was as a scientist in the field of bacteriology, where he made important contributions in studies of potable water supplies and of nitrifying bacteria. In 1914 he was appointed Assistant Chief of the Bureau of Plant Industry, and in 1917 Associate Chief. He served in this latter position until 1934, when he was placed in charge of the plant disease regulatory work of the Bureau of Entomology and Plant Quarantine.

During his period of service as an administrator in the Department, Dr. Kellerman played a very active part in the development of activities and policies. He was a member of the Federal Horticultural Board from 1914 to 1924. During this period he assisted in developing policies in the regulatory control of plant diseases. He organized the citrous canker and phony peach eradication programs. In 1913 he organized the Journal of Agricultural Research, and for 10 years was chairman of its editorial committee.

Doctor Kellerman will be remembered chiefly for his large part in the development of research and policies in the Bureau of Plant Industry. His keen analytic mind and insistence on high standards of research, are everywhere reflected in Bureau research. His dynamic personality and willingness and ability to be helpful to individual workers will long show their influence and be remembered.

Doctor Kellerman was a Fellow of the American Association for the Advancement of Science, a member of the Washington Academy of Science, International Society of Soil Scientists, American Society of Agronomy, Society of American Bacteriologists, Botanical Society of America, American Society of Naturalists, Biological Society of Washington, Botanical Society of Washington, and Sigma Xi. He was also a member of Delta Upsilon and of the Cosmos Club of Washington.

NOTICE

It is requested that employees who use the franked addressed envelopes printed with the address

U. S. Department of Agriculture

Bureau of Plant Industry Washington, D. C.

add the name of the Division or of the employee whom it is desired to reach. This will facilitate delivery by the Central Mail Room of the Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Aug. 31) Although the drought was broken in some parts of the State in August, no rainfall of consequence has been received at Denton. The precipitation for the month was only 0.19 of an inch, which is 2.69 inches below normal. The accumulated departure from normal since January is now -6.36 inches. The temperatures for the month were unusually high, a maximum of 106° having been recorded on 3 days. The minimum temperature was 70°.

As a result of the drought very little work in the way of seed bed preparation has been possible. Some plowing of sweet clover stubble and grain stubble has been possible but plowing of corn land is impossible. As a large portion of the fall-sown grain follows corn in rotation, it appears that seed beds will be in poor condition unless rain falls soon.

There were scattered rains in western Texas, including nearly all of the Panhandle.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Sept. 4) The drought was finally broken by rains totaling 1.81 inches during the period from August 20 to 24.

The sorghums have been cultivated since the rain to destroy seedling weeds and at present there are prospects for forage and possibilities for some grain from the later-planted sorghums. There is a question of whether there is time for the sorghums to head and mature grain before frost comes. However, the rain was very welcome, as it cooled off the country and gave some moisture for plant growth and wheat seed beds.

The maximum temperature for the last half of August was 107° on the 19th; the minimum was 52° on the 25th. The total precipitation for August was 1.97 inches.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)(Aug. 30) The severe drought in the southern Plains States during the winter and spring of 1933-34 was of interest to plant pathologists and agronomists because of the subsequent incidence of disease in cereal crops. The observations and remarks herein reported on cereal diseases under way at those stations apply largely to conditions obtaining in the experiment station plots and fields, to nearby farms, and, in some cases, to considerable areas.

WHEAT DISEASES

Stem Rust

Stem rust was abundant on certain varieties in nursery sowings of winter wheat at College Station, Texas. The rainfall was above normal in early spring and infection appeared early but did not spread uniformly to all wheat until late in the season. Stem rust usually overwinters at College Station.

At Denton, Texas, stem rust was observed on winter wheat on May 31. The rust was getting well under way and most varieties of wheat were so nearly mature as to escape serious injury. The soft red winter types, especially Texas Mediterranean selections, were definitely more susceptible than the hard-seed varieties.

At Lawton, Okla., only traces of stem rust were found on May 29. At Stillwater, winter wheat was in excellent condition on June 1, but only traces of stem rust could be found. At the Woodward station, drought conditions prevailed, winter wheat was very short and poor, and no stem rust appeared.

Several counties in south-central Kansas received sufficient spring rain for a normal wheat crop. Stem rust appeared in traces late in the season, but hot, dry weather prevented any serious increase. Farther north, in the vicinity of Manhattan, none could be found until early June, after which it was promptly prevented by extremely hot, dry weather. Only traces were noted. In western Kansas, the drought was so severe that stem-rust infection could not occur. Only traces of stem rust were noted in eastern Kansas, except in occasional lowland fields.

Leaf Rust

Leaf rust was very abundant in experimental sowings of winter wheat at College Station, and Denton, Texas. At Denton, some of the hard wheats were so severely rusted that they scarcely headed. The hard red winter wheats in general were much more heavily infected than the soft varieties.

At Lawton and Stillwater, Okla., leaf rust was very severe on the winter wheats. In western Oklahoma the drought inhibited infection. Only traces were found near Woodward on May 28.

Leaf rust was very abundant on winter wheat in a few counties in south-central Kansas but very light in the northern part of the State. Infection was fairly abundant at Manhattan after good rains in early May but was rapidly reduced by hot, dry weather in late May and early June. In western Kansas, there was almost none because of the drought.

The highest field resistance to leaf rust was shown by Texas Mediterranean selections, Kawvale, Quivira, and selections from Kanred x Hard Federation crosses. The hard wheats were the most susceptible.

Loose Smut

Loose smut was abundant in Denton and other Mediterranean-type soft red winter wheats in north-central Texas. Infections as high as 35 percent were seen in fields near Denton. Only small percentages were seen in commercial and experimental sowings of winter wheat in eastern Oklahoma and none in the western part of the State.

In Kansas, loose smut seems to be increasing in the north-eastern counties but is found only in traces elsewhere. Several Turkey selections from Nebraska have shown considerable loose smut in nursery sowings at Manhattan.

Stinking Smut or Bunt

The writer obtained no information on the prevalence and distribution of bunt in Texas and Oklahoma in 1934. In Kansas, the extremely droughty conditions prevalent in the western counties reduced the number of fields of wheat harvested and probably resulted in a decrease in the amount of bunt there. Reports from some localities in eastern Kansas indicate a probable increase of bunt in that section in 1934.

OAT DISEASES

Stem Rust

Stem rust was severe in experimental sowings at Baton Rouge, La., and College Station, Texas. At both stations strains of oats strongly resistant to crown rust were heavily infected with stem rust. At Denton, Texas, and Stillwater, Okla., stem-rust infection was light. In western Oklahoma and most of Kansas only occasional traces were seen on oats. Near Manhattan, Kans., stem rust did not appear until the second week in June and it was quickly dried up by hot, dry weather shortly thereafter.

Crown Rust

Crown rust was very abundant in experimental sowings of winter oats at Baton Rouge, La. Some varieties, such as Markton, were killed by crown rust at about heading time. Many Red Rustproof strains also were severely injured. Victoria, Bond, Alber, and Berger showed promising resistance.

At College Station, Texas, crown rust also was very heavy. Alber, Bond, and Victoria showed promising resistance. Farther north in Texas infection was light to moderate by May 31.

Near Stillwater, Okla., crown rust was very light on June 1 and oats were already beginning to dry up due to hot, dry weather. At Woodward, no rust could be found.

A little was reported from south-central Kansas but only traces appeared on oats at Manhattan. Conditions were very unfavorable for oats in much of Kansas. None was reported from the western part of the State.

Smut

Loose smut continues prevalent in Texas, Oklahoma, and Kansas. Most of the smut is the form that is virulent on Fulghum. This form apparently came from the winter-sown oats of the south. With the discovery and rapid adoption of the Fulghum type of oats, this form of smut increased and rapidly moved northward, until it is now coextensive with the distribution of Fulghum. In 1934 occasional fields sown with untreated seed had as much as 25 percent of smut. Covered smut is occasionally found in Kansas and was observed on a few hybrid selections at Stillwater, Okla.

BARLEY DISEASES

Two interesting observations on diseases of barley were made in 1934. A very heavy infection of leaf rust (Puccinia anomala) occurred on winter barley at Stillwater, Okla. By June 1 it was becoming severe on certain spring varieties, especially Trebi.

Considerable winter barley was grown in south-central Kansas in 1934 and many of the fields were heavily infected with covered smut. Seed samples are now being received that are very dark in color due to clinging covered smut spores. Spring barley, extensively grown in the northwestern counties, usually has more loose smut than covered smut.

NORTH DAKOTA

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(Sept. 1) The weather in August was dry and hot except for the last week, when lower temperatures prevailed. There were only a few light showers. Light frosts occurred on August 24, 25, and 26. Most of the corn was drying up from the drought before the frost caused further drying.

The field plots of flax and corn varieties were harvested during the past week. The corn has but very few ears but fodder weights will be obtained.

Considerable rain will be needed to insure the germination of winter grain, which should be sown early this month.

Grasshoppers are not so numerous as during the past 2 years at this season.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Aug. 31) The nursery harvest is completed for the season with the exception of late-sown hybrid material. No threshing has been done on the cereal project. Except where stands were injured by poor moisture conditions at seeding, all experiments are expected to yield some data.

The weather in August has been more nearly normal. The precipitation totaled 1.96 inches, and the mean temperature (62.6°) was about normal.

Threshing is well along in the community. Yields of wheat above 20 bushels per acre have been reported but the average no doubt will be considerably below 10 bushels.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin)(Sept.1) Yields of grain in this vicinity were low because of poorly distributed precipitation. The weather in August was dry except for 0.22 of an inch of rain on August 3. The maximum temperature for the month was 99° and the minimum 40°.

Yields of winter wheat in the varietal experiment ranged from 25.5 to 35.2 bushels. Federation and Jenkin each produced 35.2 bushels, and Mosida and White Odessa x Hard Federation ranked third and fourth with 33.9 and 32.3 bushels, respectively. The latter variety is being distributed for farm tests this year. It is a soft to semihard, white, nonshattering, beardless winter wheat, which possesses considerable resistance to bunt. It also is more resistant to lodging than most of the commercial varieties grown in this area.

Spring wheat varieties did not produce well this year because of so much hot, dry weather early in the spring. Baart x Federation (C. I. no. 8254) and White Federation gave the highest yields. Marquis and Jenkin were low in yield. Yields in the spring-wheat varietal plots varied from 19.9 to 29.0 bushels per acre.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (Sept. 1) Harvesting and threshing of small grains was completed in August except for three county nurseries. The average yields for the Logan nursery were exceptionally high. Leading spring wheats yielded in the neighborhood of 90 bushels per acre, while barley and oat varieties yielded up to 116 and 158 bushels, respectively. There was a rather close agreement in the yields of both the nursery and plots. This is the first season in some years in which it was possible to seed all the small grain plots and the nursery at about the same time.

A few of the smooth-awned hybrids of a barley cross between Trebi and Colorado no. 3063 yielded as high as Trebi and show considerable promise for their straw strength and other agronomic characters.

Lack of rain and irrigation water continue to be serious problems in the State. The total precipitation at Logan since April 1 is 2.67 inches, as compared to 6.30 inches for a 14-year average for April. The temperature has been very uniform during the month, the maximums ranging from 83° to 96°; the mean for the month was 70° as compared to 68° for a three-year average.

ARIZONA

Agricultural Experiment Station, Tucson (Cereal Agronomy, A. T. Bartel)(Sept. 4) The precipitation for August was slightly above normal. A trace or more of rain was reported for 22 of the 31 days in the month. The total rainfall was 2.41 inches. The mean maximum temperature was 95° and the mean minimum, 72.7°. A maximum temperature of 107° was reported on August 1.

The sorghums are making very rapid growth at this time. Double Dwarf milo and Dwarf hegari are almost in full head here.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 September 25, 1934 No. 15
Personnel (Sept. 11-25) and Field Station (Sept. 1-15)

PERSONNEL ITEMS

Dr. M. T. Jenkins left Washington September 23 for Minneapolis to assist the Seed Conservation Committee of the Agricultural Adjustment Administration in the emergency seed program.

PROOF OF DIVISION PUBLICATIONS

Histological Characters of Flax Roots and Resistance to Wilt and Root Rot. Lytton W. Boyle. Tech. Bull. 458. Galley proof read September 17.

Yields of Barley in the United States and Canada, 1927-31. H. V. Harlan, P. R. Cowan, and Lucille Reinbach. Tech. Bull. 446. Galley proof read September 20.

RECENT PUBLICATIONS

Barley Diseases Controlled by Seed Treatment. R. W. Leukel and V. F. Tapke. U. S. Dept. Agr. Misc. Pub. 199, 4 pp., illus. July 1934.

Report on a Preliminary Field Survey of the So-Called "Alkali Disease" of Livestock. Kurt W. Franke, T. D. Rice, A. G. Johnson, and H. W. Schoening. U. S. Dept. Agr. Circ. 320, 10 pp., 7 figs. August 1934.

Panicles of Rexoro Rice Injured at Emergence by Sun Scald. E. C. Tullis, A. L. Smith, and A. G. Johnson. (Phytopathological Note) Phytopathology 24(9): 1043-1044. September 1934.

The Effect of Mildew Infection on the Response of Wheat-Leaf Tissues Normally Resistant to Leaf Rust. (Phytopathological Note) Phytopathology 24(9): 1045-1046, fig. 1. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.) (C. O. Johnston.)

The Occurrence of Stem Rot of Rice in California. E. C. Tullis, Jenkin W. Jones, and L. L. Davis. (Phytopathological Note) Phytopathology 24(9): 1047. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Linkage Relations of the A_2a_2 Factor Pair in Maize. Merle T. Jenkins. Jour. Amer. Soc. Agron. 26(9): 719-720. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

A Comparison of Reciprocal Top Crosses in Corn. R. R. St. John. Jour. Amer. Soc. Agron. 26(9): 721-724. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

A Comparison of the Surface, Furrow, and Listed Methods of Planting Corn. Merle T. Jenkins. Jour. Amer. Soc. Agron 26(9): 734-737. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, N. E. Jodon)(Sept.14) The weather so far in September has been favorable for harvesting and threshing. Early sown Blue Rose will be ready for harvest in about a week. Most Early Prolific has been threshed.

The nursery material ripened rapidly last week. Earlier selections have been harvested in the yield nursery. A large proportion of the selection work has been done. An encouraging number of selections are breeding true in the F_4. Undesirable plant rows are being discarded rather freely to be replaced with material now in the F_2. Among the early maturing selections, some F_5 rows of Edith x Fortuna appear especially desirable. More than 200 F_1 seeds have been obtained, representing more than 40 combinations.

Mr. Jones visited the station from September 7 to 13. Dr. Tullis was here on the 7th. Segregation for "white tip" was found in the F_2 of Blue Rose crosses.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Sept. 18) The weather of the first half of September was cool and somewhat moist. It is likely that most of the sorghums in this region will not mature grain but will make considerable feed, or fodder. Varieties that headed during the drought are maturing or matured, but their yields will be light. Ordinary varieties are just heading; chances are against their maturing grain because of the cool nights.

Farmer's Field Day was held on the 8th. A fair-sized crowd was in attendance, though it was smaller than usual.

The maximum temperature for the first half of September was 97° on the 2d and 12th; the minimum was 47° on the 15th. The precipitation for this period totaled 1.72 inches measured on 7 days.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(Sept. 18) The first seeding in the rate-and-date-of-seeding experiments with winter wheat was made on the 17th. The ground is in good shape for rapid emergence. However, the moisture supply, particularly in the subsoil, is not over abundant, and rain would be welcome before the bulk of the seedings are made next month. Preparation of nursery seed for sowing is in progress. Reports indicate that in most of central and western Oklahoma there is sufficient moisture to start winter wheat, and seeding has begun. Probably a considerable acreage will be seeded earlier than usual because of the need for pasture.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(Sept. 15) The flax harvest was completed Sept. 7, except for the after-ripening-loss experiment and a few late nursery rows. Early harvested flax has been threshed. Late flax, which had many green bolls when harvested, is not yet dry enough to thresh.

Threshing of the wheat nursery was completed Aug. 29 and of head selections Sept. 7. Seeding of the winter hardiness wheat nursery Sept. 10 completed the wheat field work for the season.

The drought still continues. The total precipitation in August was only 0.25 of an inch and in the first half of September only 0.13 of an inch. The weather has been generally cool and frequently cloudy. A light frost on August 23 killed tender plants in low locations but caused no significant damage at the Field Station. The first killing frost occurred last night. The maximum temperature for the first half of September was 90° on Sept. 12 and the minimum 24° on Sept. 14.

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Sept. 15) Head selection work and nursery harvest have been completed and nursery threshing is now in progress. Some rather interesting rust-reaction inheritance data were taken on F_2 and F_3 durum hybrids.

Weather on the whole has been favorable for threshing which is now nearing completion in this section of the State. Yields of wheat are running higher than the farmers anticipated and the grain is of generally good quality.

Several light showers have brought 0.37 of an inch of moisture during the first half of the month but not enough to benefit the soil significantly. Fall rains are badly needed. A temperature of 32° was recorded on August 24 - the first frost of the season. Last night the temperature fell to 23°.

Following are the yields of the wheat varietal field plots grown on triplicated 1/60th-acre plots:

Variety	C.I.no.	Yield (Bu.per A.)	Variety	C.I.no.	Yield (Bu.per A.)
Common Wheats			Durum Wheats		
Thatcher	10003	25.0	Kubanka 75-3-15	11476	25.9
Pentad x Marquis	11475	24.6	Mindum x Pentad	8882	25.6
Marquis	3641	24.6	Mindum	5296	25.6
Hope x Reliance	11433	24.2	Monad	3320	25.3
Hope x Ceres	11428	24.1	Mindum x Pentad	10006	25.1
Ceres	6900	23.8	Golden Ball	11477	24.4
Komar	8004	22.7	Kubanka 75	11541	24.3
Hope x Reliance	11434	21.8	Kubanka 132	8383	24.0
Hope	8178	21.3	Kubanka	1440	22.1
Hope x 1656.97	11471	20.8			
Hope x Ceres	11432	20.2			
Reward	8182	15.9			

REC'D
LIBRARY
NOV 1 - 1934
BUREAU
OF
PLANT INDUSTRY

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

- - - - -

Vol. 26 October 10, 1934 No. 16
Personnel (Sept. 26-Oct. 10) and Field Station (Sept. 16-30)

PERSONNEL ITEMS

Mr. C. H. Kyle returned on September 28 from Tifton, Ga., where he was engaged for 3-1/2 months in corn breeding in cooperation with the Coastal Plains Experiment Station.

Dr. S. C. Salmon was in Washington from September 30 to October 9 to develop plans with the Seed Conservation Committee for the distribution of accumulated seed stocks in drought areas. He left Washington on the 9th and expects immediately to initiate steps for the organization of the necessary distributing system in cooperation with the agricultural drought services of the Agricultural Adjustment Administration and with the State experiment stations and extension services.

Mr. Lonnie M. Starr has been transferred from Tucumcari, New Mexico, to the Arlington Experiment Farm, Rosslyn, Va., to assist with field experiments under the supervision of Mr. J. W. Taylor. Mr. Starr has served at Tucumcari as field aid during the summer seasons since 1931.

Dr. V. F. Tapke was in Statesville, N. C., the first three days in October to seed the barley covered-smut nursery.

PROOF OF DIVISION PUBLICATIONS

Effect of Seed Treatments on Yield of Oats. R. W. Leukel and T. R. Stanton. Jour. Amer. Soc. Agron. Galley proof read September 26.

RECENT PUBLICATIONS

Selenium Injury to Wheat Plants and Its Inhibition by Sulphur. Annie M. Hurd-Karrer. Jour. Agr. Research 49(4): 343-357, pls. 1-2, figs. 1-4. Aug. 15, 1934. (G-919)

Recumbence in Wheat as Influenced by Light and the Soil Surface. H. H. McKinney and W. J. Sando. Jour. Heredity 25(9): 351-357, figs. 7-9. September 1934.

Mycological Letters from M. A. Curtis 1856-1861. N. E. Stevens. Mycologia 26(5); 441-448. October 1934.

TRAVEL STATEMENT

Each statement of travel by personally owned automobile must be in duplicate (both copies signed) and must bear the following notation: "No mileage is claimed within the limits of my headquarters nor within a distance of two miles of my office or place of lodging at my headquarters."

Comparative statement [get forms from Washington] in duplicate of travel by personally owned and by common carrier must accompany each voucher covering travelby personally owned car, OR a signed statement in duplicate that points visited were not accessible by common carrier, or other reason for using personally owned car.

H. S. Smith
Junior Administrative Assistant

FIGURE YOUR PER DIEM CORRECTLY

In computing per diem in lieu of subsistence for continuous travel of more than 24 hours, the calendar day (midnight to midnight) is the unit. For the fractional part of a day at the commencement or ending of a travel status period, one fourth of the rate for a calendar day will be allowed for each period of 6 hours or fraction thereof.

Where less than 24 hours is involved, figure the period as commencing with the beginning and ending with the completion of travel, and for each 6-hour portion of the period or fraction thereof, one fourth of the rate will be allowed; provided, that no per diem will be allowed for absences of 10 hours or less between 8 a. m. and 6 p. m.

Where a per diem allowance changes from one rate to another, actual time at each rate must be used. For instance, from midnight to 9:15 a. m. would be 9/24 of a day.

H. S. Smith
Junior Administrative Assistant.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Sept.30) The drought was finally broken in this section on September 3 by a slow rain of 1.58 inches. This was the first effective rainfall since May 24, a period of 102 days. The rainfall in September totaled 3.37 inches which is considerably above normal for the month but still insufficient to insure a good season in the ground. The temperatures were close to normal with a maximum of 102° and a minimum of 51°.

Following the rain of September 3 plowing of ground for fall grain was started. Seed beds were prepared and some field grain was sown on the Substation for pasture. Because of drying weather only part of this grain had emerged

by the end of the month. Seeding of experimental grain plots and nursery material will be started soon, even though there is no moisture for germination.

The writer left for Amarillo on September 24, and during the period from Sept. 25 to Oct. 2 seeded the winter-wheat nursery at Amarillo and four cooperative varietal tests on the Panhandle Plains. At Hereford, 10 varieties were sown under favorable conditions of seed bed moisture. At Amarillo there is sufficient moisture for germination but little surplus. At Plainview and Spearman, it was necessary to sow in dry soil. The prospects for winter wheat in the Panhandle are not at all promising, only a few sections having sufficient moisture for germination of fall grain. In most sections seeding is in progress, even though it is nece ssary to sow in dry soil.

KANSAS

Fort Hays Branch Station, Hays (Cereal Agronomy, A. F. Swanson)(Sept.30) Rains have been rather general in western Kansas. In some areas they have been sufficient to restore subsoil moisture, while in others the precipitation was only enough to insure surface moisture for good germination. Wheat seeding is progressing rapidly in the State. All of the experimental seedings have been made on the Cereal Project, except those in which dates of seeding are involved.

The feed situation has greatly improved in that the sorghums still continue to make good growth. Frost has not yet been general in this area. Fields of sorghum which two months ago looked hopeless have in many cases progressed to the extent that one third to one half of a crop of forage may be expected. Wheat has been sown extensively for green pasture. The weather is ideal for good early fall growth and the indications are that considerable pasturage may be expected from this source. Experiments conducted at this station over a number of years and observations made among farmers indicate that green wheat pasture is as nutritious as summer grass when the crop is able to make satisfactory fall and winter growth.

There will be a shortage of sorghum seed for next year's planting. However, if frost is delayed two more weeks a fair amount of Wheatland milo will mature in the southern part of the State. The acreage of this variety is large in Kansas.

COLORADO

United States Dry Land Field Station, Akron (Wheat Improvement, J. J. Curtis)(Oct. 1) The weather for September has been dry and somewhat cooler than normal. The maximum temperature was 92° on the 13th and the minimum, 19° on the 25th. The precipitation was 0.75 of an inch. The precipitation for the first 9 months of 1934 has totaled 12.11 inches, as compared to an average of 15.20 inches.

All crops have been nearly a complete failure this year. In every case yields are lower than the rainfall indicates they should be. Poor yields no doubt are due to extremely high summer temperatures and poor distribution of the rainfall.

The winter-wheat nursery, the winter-wheat varietal experiment, and other winter-wheat plots have been seeded the past two weeks. Wheat is emerging to fair to poor stands on fallow and has not emerged on cropped land.

Farmers in this region are very short of feed for all classes of livestock. Many farmers have harvested Russian thistles in an attempt to carry part of their livestock through the winter. Winter wheat as a rule will not emerge in this region until we get rain.

United States Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)(Oct. 1)[In absence of V. C. Hubbard] Snow flurries and showers in the last half of September amounted to only 0.34 of an inch of precipitation. This should provide sufficient moisture to germinate some of the September-sown winter wheat, though no emergence has been noted to date. The total precipitation recorded for the first 9 months of 1934 was only 7.09 inches, which is less than half the average precipitation for this period during the past 60 years.

Threshing of the flax nursery material is completed except for a few selections and late rows that are still too green. The remainder of the after-ripening-loss experiment, left in the field to be harvested at later dates, was destroyed by rabbits.

The maximum temperature for the last half of September was 84° on Sept. 16 and the minimum, 24° on Sept. 25.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)(Oct.1) The weather for September remained dry until the last week, when about 4 inches of snow fell. The resulting moisture was sufficient to cause the fall-sown wheat and rye to begin germinating. With the continuance of the present mild weather this grain should emerge in a few days.

The total precipitation for September was 0.53 of an inch, mostly in the form of snow. The maximum temperature was 93° on the 12th; a minimum of 18° was reached on the 15th and 26th.

The yields obtained from quadruplicated field plots of spring wheat, oats, and barley, and from duplicate plots of flax and rye varieties are presented below. Owing to drought, crop failures resulted from the experiments with winter wheat and proso. The yields shown were obtained on corn stubble. Yields from the nursery grown on fallow were fairly good.

Acre yields of grain varieties grown in replicated plots at the Dickinson Substation, 1934

Spring Wheat

Variety	C. I. no.	Bu. per acre
Supreme	8026	3.1
Red Fife	3329	3.1
Ceres	6900	3.0
Komar	8004	3.0
Marquis	3641	2.8
Haynes	2874	2.8
Reliance x Hope (NN 1131)	11435	2.7
Reliance	7370	2.6
Thatcher	10003	2.6
Hope-Ceres (Ld. No.)(NN1098)	11428	2.5
Reliance x Hope (NN 1121)	11434	2.5
Reliance x Hope (NN 1110)	11433	2.2
Hope	8178	2.1
Comet	11465	1.8
Hope x 1656.97 (Ns.2421)	11471	1.7
Reward	8182	1.3
Durum		
Kubanka 132	8383	3.5
Kubanka	1440	3.0
Mindum	5296	2.3
Pentad	3322	1.9

Oats

Variety	C.I.no.	Bu. per Acre	Variety	C.I.no.	Bu. per Acre
Green Russian sel.	2343	10.2	Wayne	2567	8.8
Iogold	2329	9.7	Gopher	2027	8.6
Minrus	2144	9.7	Richland sel.52	3008	8.1
Rainbow	2345	9.4	Anthony	2143	8.1
Markton	2053	9.3	Swedish Select	134	7.8
Edkin	2330	9.2	Kherson	459	7.5
Carleton	2348	9.1	Victory	560	7.1

Emmer

Yaroslav	1526	7.7	Vernal	1524	6.1

Barley

Hannchen	531	8.0	Manchuria	244	5.1
Svansota	1907	7.6	Odessa	182	5.0
Horn	926	7.2	Trebi	936	4.7
Steigum	907	6.0	Lion	923	4.5
Regal	5030	5.9	Velvet	4252	3.7
Colsess	2792	5.8	Wisconsin No.38	5105	3.7
Glabron	4577	5.2	Composite crosses	--	3.0

Flax

Bison	389	0.9	Buda	326	0.4
Walsh	645	0.7	Rio (Long 79)	280	0.3
Redwing	320	0.6	N. D. R. 52	490	0.3
Newland	188	0.5	N. D. R. 114	489	0.3
N.D.40046	492	0.5	Linota	244	0.2
Sib no.206	473	0.5	Golden	-	0.2
Hybrid 167 x 179	476	0.4			

Rye

Prolific (spring)	-	1.7	German (winter)	-	1.3
N. D. R. 9(winter)	-	1.3	Dakold (winter)	-	0.9

Langdon Substation, Langdon (Wheat Improvement, G. S. Smith)(Oct. 2) Nursery threshing has just been completed and plot samples are being cleaned and other fall jobs finished up. The uniform winter-hardiness nursery will be sown shortly. Yields in the nursery and plot experiments ranged from 15 to 30 bushels per acre. Although not perfect, stands were an unimportant factor in the yields. Rust and grasshoppers were also of minor importance as yield factors in the cereal experiments. High temperatures were not so destructive as in 1933, and apparently the varietal response to soil moisture was the major limiting factor in the 1934 yields.

The temperatures in September were colder than average, the mean being 49.1°. Precipitation totaled 1.24 inches.

Following is a report of yields of the uniform hard red spring wheat nursery:

Variety or Hybrid and No.	C. I. no.	Yield Bu. per A.
Canus	11637	22.0
Reliance x Hope (NN.1154)	11638	20.5
Hope x Ridit	11439	20.1
Kota x Marquis 1656.106	11468	20.0
Kota x Webster H-209	11463	19.9
H-44 x Marquis sel.1552	11551	19.9
Reliance x Hope (NN.1121)	11434	19.6
Ceres	6900	19.6
Comet (NN.649)	11465	19.6
Ceres x Hope-Florence (Ns.2553)	11640	19.5
(D.C.-H-44) x Marquis (CT304)	11636	19.3
Hope x Ceres (NN.1098)	11428	19.2
Hope x(Turkey-Florence G 344)	11440	19.2
H-44 x Marquis II-26-6	11643	18.9
D.C. II-21-18 Minn.2315	10020	18.6
Marquis	3641	18.8
Pentad x Marquis (R.L.729)	11475	18.1
H-44 x Marquis II-26-9	11644	18.1
Hope x 1656.48 (Ns.2554)	11641	17.4
H-44 x Marquis (R.L.704)	11634	17.3
Ceres x Hope-Florence (Ns.2552)	11639	17.3
Hope x 1656.48 (Ns.2555)	11642	17.1
Hope x 1656.97 (Ns.2421)	11471	17.0
H-44 x Reward (R.L.716)	11635	15.1
H-44	8177	14.8

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin)(Oct.1) The first frost of the season occurred on September 20, when the temperature dropped to 28°. The only precipitation in September was 0.31 of an inch in two light showers on September 23 and 24. This moisture was soon dissipated and was insufficient to germinate weed seeds. At least 2 inches of rain will be necessary to put the soil in good condition for seeding. Otherwise, very little seeding will be done before October 20 to November 1. A rate-and-date-of-seeding experiment was sown this morning.

UTAH

Agricultural Experiment Station, Logan (Wheat Improvement, R. W. Woodward) (Oct.1) The weather continued dry and hot during the first three weeks of September. On September 23 and 24 rain and snow fell in northern Utah, wetting the soil to from 4 inches to over a foot. The snow line was very near the valley floor for several days. After the weather cleared, the minimum temperature was 22°, one of the lowest September temperatures recorded.

Considerable winter wheat has been seeded following the storm and the prospects are good for early emergence, although more moisture will be needed to keep the wheat alive any length of time. The winter-wheat yield nursery was seeded on September 29, the soil being in very good condition.

Harvesting of corn and grain sorghum nurseries is nearly completed and nearly all varieties ripened very well by the time the first frost occurred.

The mean temperature for September was 56.5°, as compared to a 4-year mean of 59.1°. The precipitation was 0.93 of an inch, and the evaporation 3.73 inches. The total precipitation for the growing season (April to September, inclusive) was 3.60 inches, as compared to a 10-year average of 7.53 inches.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 26 October 25, 1934 No. 17
Personnel (Oct. 11-25) and Field Station(Oct. 1-15)

PERSONNEL ITEMS

The official headquarters of Mr. Glenn S. Smith have been changed from Langdon Substation, Langdon, N. Dak., to the North Dakota Agricultural Experiment Station, State College Station, Fargo, N. Dak., effective October 25.

RECENT PUBLICATIONS

Field Experiments with Vernalized Wheat. H. H. McKinney, W. J. Sando, Arthur F. Swanson, Vincent C. Hubbard, Glenn S. Smith, Coit A. Suneson, and Joe L. Sutherland. U. S. Dept. Agr. Circ. 325, 8 pp. September 1934.

Effect of Seed Treatments on Yield of Oats. R. W. Leukel and T. R. Stanton. Jour. Amer. Soc. Agron 26(10): 851-857. October 1934. (Cooperation between Division of Cereal Crops and Diseases and the agricultural experiment stations of Illinois, Iowa, Wisconsin, Minnesota, Indiana, and New York.)

The following is a Press Release from the U. S. Department of Agriculture, Office of Information, Press Service, dated October 23, 1934:

F. D. RICHEY NAMED CHIEF OF BUREAU OF PLANT INDUSTRY

Secretary of Agriculture Henry A. Wallace today announced the appointment of Frederick D. Richey as Chief of the Bureau of Plant Industry, vice Knowles A. Ryerson. Mr. Ryerson will resume his earlier work with citrus fruits, avocados, dates, papayas, mangos and other tropical fruits, heading a section of Subtropical Horticulture in the Department. Mr. Richey who succeeds Mr. Ryerson has been in the Bureau of Plant Industry for more than 23 years, having been in the Division of Cereal Crops and Diseases until January 1 of this year when he was appointed Associate Chief of the Bureau, which he now heads.

AMERICAN SOCIETY OF AGRONOMY

The twenty-seventh annual meeting of the American Society of Agronomy will be held on November 22 and 23 at the Wardman Park Hotel in Washington, D. C.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, N. E. Jodon)(Oct. 16) Less than half an inch of rain has fallen since the first of October and conditions have been favorable for threshing. The greater part of the crop in this section has been threshed.

On the station all Rexoro rice will be cut in a few days, thus completing the harvest. The nursery harvest and selection work also is nearly finished.

The hybridization program was fairly successful, 426 F_1 seeds having been obtained, representing 50 combinations. It is estimated that 25 percent of the florets pollinated set seed, but success varied with variety and conditions.

Mr. P. A. Sanchez, chemist of the Cuban Agricultural Experiment Station visited this station October 13. He states that Fortuna is the principal variety in his country.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Oct. 15) Weather conditions for the first half of October were unfavorable for the growth of fall-sown crops. Only 0.14 of an inch of precipitation was received. The maximum temperature was 92° and the minimum 47°.

The rainfall in September was not sufficient to provide subsoil moisture and since that time all the surface moisture has been lost. Fall seedings of grain made in September emerged but are now in need of moisture and some are dying. Fall feed crops and grain for pasture have been seriously hurt by the dry weather.

All fall seedings of experimental grain have been made in dry soil on the Substation. Seed beds were completely dry and in only fair condition.

The writer attended a meeting of the Lone Star Section of Cereal Chemists at San Antonio on October 6. This meeting was held jointly with the bakers of Texas to discuss qualities of soft wheat flour especially for pastry work.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(October 17) The weather of the first half of October was satisfactory for growing and ripening sorghums. The temperature has held up remarkably well. Some of the sorghums which a month ago apparently had no chance to produce seed are now developing rapidly.

On October 11 most of the experimental broomcorn was harvested. The yield and quality are both very low.

The maximum temperature for the first half of October was 92° on the 8th; the minimum for the same period was 48° on the 11th and 12th. The precipitation for this period totaled 0.34 of an inch.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(Oct. 17) Conditions are fairly good for growth of winter wheat, although a good rain would be very beneficial. The varietal plots were sown on October 9 and 10 and are now up to good stands. Much of the winter-wheat nursery is up and growing fast. Two light showers have delayed seeding the nursery this week, but all the nursery except bunted material probably will be sown by the end of the week. Seeding on farms in this vicinity is nearly completed and many fields are nearly far enough along to be pastured.

NEBRASKA

Agricultural Experiment Station, Lincoln(Wheat Improvement, C. A. Suneson) (Oct. 15) The past 9-1/2 month period has been the driest recorded here in 57 years. However, in the Lincoln area slightly more than 4 inches of rain were recorded in September, which gave one month during the current year when the precipitation was above normal. Similar conditions exist in all but a few local areas. North Platte, for instance, had good rains in both August and September. Eastern Nebraska has had no frost yet so far this fall.

Winter wheat was sown much earlier than usual. (the writer has estimated that 40 percent of the potential acreage in south-central counties was sown as of September 14 and seeding activity continuing briskly on almost every farm) and emerged to good stands in all sections except the northwest. Hessian fly have not caused concern. Since there is no reserve moisture in the subsoil, this early sown wheat must have rain soon.

Experimental yield tests at Lincoln were sown during the first week of October. The current "heat wave" with maximums each day for the past two weeks in the upper eighties or lower nineties has delayed seeding of bunt nurseries. The winter-wheat improvement nurseries here will occupy 3 acres and special physiologic or agronomic studies an additional acre during 1934-35. Studies involving artificial freezing tests also are being expanded.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, and Flax Breeding, J. C. Brinsmade, Jr., in absence of V. C. Hubbard,)(Oct.16) A rainfall of 0.62 of an inch the night of October 15 was the only precipitation recorded for the first half of October. The temperatures during this period were generally high for this season; the maximum was 86° on the 10th and the minimum, 28° on the 1st. The latter was the only temperature below freezing.

Winter wheat sown on September 10 emerged with good stands about October 5.

The flax threshing was completed October 4. Yields from increase plots and 17-foot rows in the varietal nurseries, in which stands were irregular, are not worth reporting. Yields from 5-foot and 2-foot rows on flax-sick soil, where stands were satisfactory, were remarkably good, considering the unprecedented drought. Yields from triplicated rows averaged as high as 6 bushels per acre and individual row yields ranged up to 9 bushels.

OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)[Oct.15] Acre yields in bushels of spring-barley varieties grown in duplicate 1/20-acre plots at Moro, Oreg., 1934

Variety	C.I.no.	Av.	Variety	C.I.no.	Av.
Club Mariout	261	34.8	Arequipa	1256	30.5
Peruvian	935	34.8	Trebi	936	27.5
Flynn sel. 39	5918	34.2	Meloy (1176-3)	4656	26.9
Flynn (1311-1)	5911	31.1			

Average 31.4

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 November 10, 1934 No. 18
Personnel (Oct.26-Nov. 10) and Field Station (Oct. 16-31)

PERSONNEL ITEMS

Mr. C. E. Chambliss spent 4 days in Chicago, conferring with canners and packers of foods in regard to the use of rice, returning to Washington on October 27.

Mr. R. W. Leukel and Dr. R. J. Haskell, extension pathologist, spent October 25 and 26 in Richmond, Danville, and Lynchburg, Va., studying methods of commercial seed treatment and storage.

Mr. Harland Stevens, stationed at the Aberdeen Substation, Aberdeen, Idaho, reported in Washington October 29. He will be in the Division of Cereal Crops and Diseases for about three months to confer with the personnel on plans for further cooperative experiments with cereals and to prepare his annual report.

PROOF OF PUBLICATIONS

Effects on Wheat Plants of Ophiobolus graminis at Different Levels. Hurley Fellows and C. H. Ficke. Jour. Agr. Research. Galley proof returned October 30.

Classification of Wheat Varieties Grown in the United States. J. Allen Clark and B. B. Bayles. Tech. Bull. 459. Galley proof returned November 6.

Cereal-Rust Parasitism: Its Relation to Water Economy, Yield, and Quality of the Host Plant. H. B. Humphrey. Roy. Soc. Canada, Proc. and Trans. Galley proof returned November 9.

Studies on the Possible Origin of Physiologic Forms of Sphacelotheca sorghi and S. cruenta. H. A. Rodenhiser. Jour. Agr. Research. Page proof returned October 18.

November 2, 1934.

MEMORANDUM NO. 653

Appointment of Assistant Chiefs, Bureau of Plant Industry

Effective this date, Drs. E. C. Auchter and M. A. McCall are appointed Assistant Chiefs of the Bureau of Plant Industry. Mr. H. E. Allanson is appointed Business Manager. Drs. Auchter and McCall will also continue in charge of their Divisions of Fruit & Vegetable Crops & Diseases and Cereal Crops & Diseases, respectively.

(Signed) H. A. Wallace
Secretary.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Nov. 1) Seedings of all experimental small grain were made the early part of October, but as there has been no precipitation the seed has not germinated. The small amount of moisture received in September was lost in preparation of seed beds for the grain. Even if rain comes soon all small grain is likely to be so late that there will be considerable danger of winter-killing.

The weather in October continued abnormal, as it has been throughout the summer and fall. The precipitation for the month was only 0.14 of an inch, or 3.28 inches below normal, and the third lowest ever recorded for October at this Station. The mean temperature of 71.4° is a new high record for October, as is also the mean maximum of 86.6°. The mean humidity of 55.9 percent is 13 percent below normal and has been exceeded only once in 21 years. The total evaporation of 5.196 inches has been exceeded only twice in the history of the Station

The Panhandle of Texas has received only scattered showers in the past month, and wheat is in poor condition, a large part still not having germinated.

OKLAHOMA

Southern Great Plains Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Nov. 1) A temperature of 29° on the morning of October 28 frosted the leaves of sorghum and apparently growth has been stopped. There is enough grain on a number of the plots to necessitate harvesting them, even though the yields will be very low. Harvesting a poor crop takes about as much time as harvesting a good one.

The maximum temperature for the last half of October was 86° on the 16th and 26th; the minimum, 29° on the 28th. The precipitation for this period totaled 0.73 inch, recorded on 5 days.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens)(Nov. 1) Seeding of the winter-wheat experiments is now completed except for late seedings in the rate-and-date-of-seeding experiments. Most of the experiments have emerged and stands are good. Early sown plots on cropped ground in the rate-and-date-of-seeding experiments are in poor condition, apparently from lack of moisture. The corresponding plots on fallow have a good growth and healthy appearance.

Some parts of western Oklahoma have reported more rain in October than fell at Woodward, and winter wheat in many parts of the State probably is in fair to good condition.

Yields of winter-wheat varieties grown in triplicate 1/50th-acre plots at the Panhandle Experiment Station, Goodwell, Okla. (H H. Finnell and H. A. Daniels) [Nov. 8]

Variety	C. I. no.	Av. yield (Bu. per acre)
Turkey sel.(Nebr.)	10094	19.6
Oro	8220	18.9
Early Blackhull	8856	18.2
Superhard	8054	18.0
Kharkof	1442	17.4
Turkey sel. (Nebr.)	10016	17.0
Redhull	11534	16.5
Kanred	5146	16.5
Blackhull	6251	16.4
Eagle Chief	8868	16.0
Tenmarq	6936	15.9
Nebraska No. 60	6250	15.7
Turkey 102 (Goodwell)	--	15.5
Turkey 101 (Goodwell)	--	15.4
Cheyenne	8885	15.4
Malakof	5663	13.9
Fulcaster	6471	13.6
Nebraska No. 28	5147	13.4
Quivira	8886	12.6
Kawvale	8180	12.4
Mediterranean	5303	12.4
Minturki	6155	12.3
Harvest Queen	6199	12.0
Purkof	8381	11.8
Sibley no. 81	10084	11.6
Ioturk	11388	11.3
Denton	8265	11.1
Fultz	3416	9.8

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) [Nov. 8] Yields of spring-wheat varieties grown in four 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1934.

Class and Variety	C. I. no.	Nursery no.	Av. yield (Bu.per acre)
Hard Red Spring:			
Comet	11465	649	18.2
Marquis x Hard Federation	11467	666	17.5
Supreme	8026	-	16.9
Thatcher	10003	-	16.7
Reliance	7370	-	15.9
Kota x Marquis 1656.48	10014	-	14.8
Ceres	6900	-	14.7
Reward	8182	-	13.8
Reliance x Hope	11434	1121	13.2
Marquis	3641	-	13.2
Power	3697	-	12.7
Reliance x Hope	11431	1128	12.5
Hope	8178	-	12.4
Reliance x Hope	11433	1110	12.2
Durum:			
Kubanka	1440	-	12.8
White:			
Baart	1697	-	18.6
Federation	4734	-	15.7

Yields of oat varieties grown in four 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1934.

Variety	C. I. no.	Av. yield (Bu. per acre)
Markton x Idamine	2576	38.1[1/]
Sixty-Day	165	38.0
Iogold	2329	36.4
Selection	357-168	33.6
Markton	2053	33.0
Gopher	2027	33.0
Carleton	2378	32.8
Selection	357-185	32.5
Markton x Swedish Select	2665	29.7[1/]
Markton x Victory	2606	29.7[1/]
Selection	357-169	28.8
Idamine	1834	26.7
Swedish Select	134	24.2

1/Yield of only one plot.

OREGON

Agricultural Experiment Station, Corvallis (Foot Rots of Wheat) Roderick Sprague)(Nov. 2) The seed-treatment experiments on the control of bunt were sown at Pendleton on October 25 and 26. The soil was in good condition following recent rains. Date-of-seeding experiments on this project were made at Pendleton by J. F. Martin, at Pullman, Wash., by C. S. Holton, and at High Prairie by the writer. The Cercosporella foot rot varietal resistance nursery at High Prairie was seeded on September 2 in very dry soil. Prospects for uniform results are the poorest since 1931.

There was no precipitation at Corvallis in September and October until recently. Seeding was virtually impossible until the rains started and since then there has been no let-up. There are still nearly 1,000 8-ft. rows of seed-treatment material to be sown. The Farm Crops Department at the College has been unable to seed the nursery experiments. Precipitation has continued almost without a break for 96 hours.

The foot-rot plot at Alsea also awaits favorable weather. The rain gauge recorded 10.82 inches in October, almost all of which fell after the 18th. On account of the light soil there it will be impossible to seed as soon as the rains cease for a few days. The prospects for Corvallis are not so bright.

UTAH

Agricultural Experiment Station, Logan (Cereal Agronomy, R. W. Woodward)(Nov. 1) All the winter-wheat nurseries and experiments are seeded and in most cases the grain is from 2 to 4 inches high. Commercial fields are equally good in Cache and Box Elder counties.

Grain sorghums did exceptionally well this year with only a limited amount of water. The silage yields on the green weight basis ranged from 8 to 18 tons per acre, Red Amber, Dwarf hegari, and Standard feterita each producing over 17 tons per acre. The grain yields of the leading varieties were as follows:

	Bu. per acre
Dwarf hegari	121
Sooner milo	116
Red amber	117
Early Straightneck milo	105
Feterita	89
Dakota amber	85

The large number of hybrids in Dwarf hegari partly accounts for the high yield. For the past 4 years feterita has been extremely variable. This season and in 1931 it produced a vigorous growth and matured a heavy seed crop. In cooler seasons feterita produces little growth and very little seed.

Fall showers commenced the latter part of September and have continued at frequent intervals throughout October. There has been sufficient moisture for excellent germination and growth of winter wheat, especially in northern Utah. Conditions so far appear more favorable to agriculture than for several years.

Even when moisture was sufficient, the yield and growth of corn were inferior to those of 1933. The maximum yield was 71 bushels per acre from a selection of White dent selected and bred in Millard County.

Five varieties of flax were each grown in five plots arranged in a Latin square for each of three dates of harvest in order to study the effect of maturing a second bloom, which occurs when the soil is kept moist throughout the season. The yield of plots allowed to remain until September was more than 20 percent higher than that of plots harvested at the normal time of ripening.

Yield in Bushels per Acre of 5 Varieties of Flax
Harvested on 3 Dates in 1934

Variety	Date harvested	Yield	Date harvested	Yield	Date harvested	Yield	Av. Yield
Rio	Aug. 21	33.7	Sept. 8	46.7	Sept. 29	45.8	42.0
Buda	Do.	31.5	Do.	37.9	Do.	37.5	35.6
Bison	Do.	35.8	Do.	40.5	Do.	45.4	40.6
Linota	Do.	38.8	Do.	41.4	Do.	43.2	41.1
Redwing	Do.	31.5	Do.	37.7	Do.	37.5	35.6
Av.		34.3		40.8		41.9	

When sufficient irrigation water was applied, most crops produced record yields on the Central Experiment Farm at North Logan in 1934.

The total precipitation for October was 1.04 inches and the mean monthly temperature was 48.5°.

JAN 10 1935

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 26 November 25, 1934 No. 19
Personnel (Nov.11-25) and Field Station (Nov. 1-15)

PERSONNEL ITEMS

Dr. H. V. Harlan and Dr. M. A. McCall made a trip to Chicago, Minneapolis, and Madison early in November in the interests of the malting barley improvement program. At Chicago, a conference was held with the representatives of the Wahl-Henius Institute relative to the cooperative testing and identification of malting barleys from the 1933 crop. At Madison, the equipment and set-up for the cooperative study of malting quality was inspected. Conferences were held at Milwaukee with the personnel of the Wisconsin station and of the trade.

Dr. S. C. Salmon presented a paper entitled "The Seed Situation in the Great Plains" before a meeting of the Western Seedsmen's Association held at Kansas City, Mo., November 24.

PROOF OF PUBLICATIONS

Histological Characters of Flax Roots and Resistance to Wilt and Root Rot. Lytton W. Boyle. Tech. Bull. 458.

RECENT PUBLICATIONS

Heterothallism in Corn Rust. Ruth F. Allen. (Abstract) Phytopathology 24(10): 1142-1143. October 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Heterothallism in Flax Rust. Ruth F. Allen. (Abstract) Phytopathology 24(10): 1143. October 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Overwintering of Aplanobacter stewarti. Charlotte Elliott and F. W. Poos. Science 80: 289-290. Sept. 28, 1934. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Bureau of Entomology and Plant Quarantine.)

Carbohydrate and Nitrogen Relations in Wheat Plants with Reference to Type of Growth under Different Environmental Conditions. A. M. Hurd-Karrer and A. D. Dickson. Plant Physiol. 9: 533-565. July 1934.

AMERICAN SOCIETY OF AGRONOMY

Officers 1934-35

President: Dr. H. K. Hayes, University Farm, St. Paul, Minn.

Vice President: Mr. R. M. Salter, Agricultural Experiment Station, Wooster, Ohio.

Chairman, Crops Section: Dr. R. D. Lewis, Ohio State University, Columbus, Ohio.

Chairman, Soils Section: Dr. E. C. Millar, Michigan State College, East Lansing, Mich.

Secretary-Treasurer: Dr. P. E. Brown, Iowa State College, Ames, Iowa.

Editor: Mr. J. D. Luckett, New York Agricultural Experiment Station, Geneva, N. Y.

The following were elected as Fellows of the American Society of Agronomy at the meetings held in Washington, D. C., November 1934:

Mr. F. D. Richey, Chief, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

Dr. John H. Parker, Kansas State College of Agriculture and Applied Science, Manhattan, Kans.

Mr. R. M. Salter, Agricultural Experiment Station, Wooster, Ohio.

The following papers prepared by members of the staff of the Division of Cereal Crops and Diseases were read at the meetings of the American Society of Agronomy held at Washington, D. C., in November 1934:

Inheritance of Stem Rust Reaction in Wheat, II, by J. Allen Clark and Glenn S. Smith.

Results of Breeding Corn for Resistance to the European Corn Borer, by G. H. Stringfield.

IOWA CORN RESEARCH INSTITUTE

The following members of the staff of the Division attended the meetings of the First Program of the Iowa Corn Research Institute at Ames, Iowa, November 15 and 16, 1934:

Dr. Charlotte Elliott, Dr. J. R. Holbert, Dr. M. T. Jenkins, Dr. L. J. Stadler, and Dr. N. E. Stevens.

The following papers were read by members of the staff:

Dissemination of Bacterial Wilt of Corn, by Charlotte Elliott.

Resistance and Susceptibility of Corn Strains to Second Brood Chinch Bugs, by J. R. Holbert, W. P. Flint, J. H. Bigger, and G. H. Dungan.

The Effect of Inbreeding and of Selection within Inbred Lines of Maize upon the Hybrids Made After Successive Generations of Selfing, by M. T. Jenkins.

Lost Mutations in Maize, by L. J. Stadler.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Nov. 15) The above-normal temperatures which prevailed throughout the month of October continued through the first half of November. The mean temperature for the first half of the month was 64.3°, or almost 10° above the 21-year average for November. The minimum temperature was 35°, accompanied by slight frost in low places. There has been no killing frost as yet, although the normal date is November 11. There was no precipitation of importance until the night of the 14th, when 0.41 inch was recorded. This will be of value to early grain which has been in a critical condition, but seed wheat now in the ground may rot if more rain is not received.

OKLAHOMA

United States Dry Land Field Station, Lawton (W. M. Osborn)[Nov. 25] Yields of winter-wheat varieties grown in three 1/50th-acre plots at Lawton, Okla., 1934

Variety	C. I. no.	Av. yield (Bu. per acre)
Kanred x Hard Federation	11373	28.7
Do.	10092	28.6
Quivira	8886	26.5
Kanred x Hard Federation	10091	26.4
Mediterranean sel.	11587	26.2
Kawvale	8180	25.5
P-1066-1 x Prelude	11590	25.4
Mediterranean sel.	11525	24.4
Kanred x Marquis	11589	23.2
P-1066-1 x Burbank	10087	23.0
Denton	8265	22.6
Early Blackhull	8856	22.0
Termarq	6936	21.8
Kanred	5146	19.8
Blackhull	6251	19.1
Eagle Chief	8868	18.7
Fulcaster	6471	18.1
Turkey	1558	17.9
Sibley no. 62	11523	17.8
Cheyenne	8885	17.7
Kharkof	1442	17.0
Ioturk	11388	16.2
Nebraska No. 60	6250	15.8
Carrell	3326	15.7
Harvest Queen	6199	15.3
Turkey sel.	10016	14.7
Turkey sel.	10083	14.6

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) [Nov. 25] Yields of barley varieties grown in a single 1/50th-acre plot at the Judith Basin Branch Station, Moccasin, Mont., 1934.

Variety	C. I. no.	Av. yield (Bu. per acre)
Himalaya	620	12.0
Atlas	4118	19.3
Coast	690	17.7
Trebi	936	16.7
New Composite Cross (spring)	5461	16.7
Horn	926	15.1
(China)	4197-1	13.0
Hannchen sel.	5462	10.4
(Unnamed)	3842	9.9
Hannchen	531	7.8

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin)(Nov.15) Dry weather delayed seeding operations until about October 25. The seeding of the nursery experiments was finished on November 4. The weather since then has been mild and the soil has ample moisture, so that most of the stands are satisfactory.

Because of the dry fall many farmers in the vicinity are waiting until spring to sow wheat. There is danger of poor emergence and many weeds from seeding in dry fallow, and most of the farmers prefer to sow in the spring rather than late in the fall.

RECD LIBRARY JAN 10 1935 BUREAU OF PLANT INDUS

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

- - - - -

Vol. 26 December 10, 1934 No. 20

Personnel (Nov.26-Dec.10) and Field Station (Nov.16-30)

PROOF OF PUBLICATIONS

Influence of Smut Infection on Plant Vigor and Other Characters in Smut-Resistant Oat Varieties. V. C. Hubbard and T. R. Stanton. Jour. Agr. Research. (G-938).

RECENT PUBLICATIONS

Studies on Blooming in Rice. C. Roy Adair. Jour. Amer. Soc. Agron. 26(11): 965-973, figs. 1-2. November 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Growth of Wheat during the Heading Period. V. H. Florell and Boyd Faulkner. Jour. Amer. Soc. Agron. 26(11): 954-964, figs. 1-4. November 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

Effect of Chemical Treatments of Seed Corn on Stand and Yield in Kansas. Leo E. Melchers and Arthur M. Brunson. Jour. Amer. Soc. Agron. 26(11): 909-917. November 1934. (Cooperation between the Division of Cereal Crops and Diseases and the departments of botany and agronomy, of the Kansas Agricultural Experiment Station.)

Inheritance of Awn Development in Sorghums. J. B. Sieglinger, A. F. Swanson, and J. H. Martin. Jour. Agr. Research 49(7): 663-668, fig. 1. October 1, 1934.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)(Dec. 4) The temperatures in November were somewhat higher than for November 1933. The maximum temperature was 84° and the minimum 35°. The total precipitation of 8.61 inches fell on 10 days, the greater part in the last 2 weeks.

The rains were very much needed to soften the soil, which had become too hard to permit satisfactory plowing because of the dry weather of October.

Threshing operations on the Station were finished November 13. The yields of rice, as a whole, are satisfactory. On land recently acquired by the Station, which had been clean fallowed for 3 years, some plots produced as high as 100 bushels per acre.

The exceptionally warm weather of October permitted the ripening of a plot of volunteer Patna rice on November 14. In the many attempts to grow Patna rice, this is the first time a plot has fully matured. Last year the same plot matured some grain, but it was damaged by low temperatures.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins)(Nov. 30) The weather continued unseasonably warm and dry throughout November. The mean temperature for the month was 59.3°, or 4.6° above normal. The first killing frost of the year was recorded on the 28th, or 17 days later than normal. This was also the only temperature below freezing recorded for the month.

The drought was finally broken on the 13th. Rain fell for 9 consecutive days, and a total of 2.69 inches was recorded for the month. This was sufficient to cause germination and emergence of all small grain about the 23rd of the month. No subsoil moisture is available as yet, however, and more rain will be needed to carry the grain through the winter.

At the end of the month grain was in good condition although small and young to enter the winter. The uniform bunt nursery as well as local bunt seedings were made on the 23rd.

Reports from the winter-wheat experiments at Amarillo indicate that none had emerged on the 17th of November. General rains were received over that area soon afterwards, however, and it is hoped that emergence will soon occur.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, in absence of V. C. Hubbard, and Flax Breeding, J. C. Brinsmade, Jr.) (Dec. 4) Drought and abnormally high temperatures prevailed throughout November. The mean temperature for the month was 6° above average. The total precipitation was 0.17 inch. Winter wheat has been eaten off to some extent by rabbits and is likely to winter-kill unless a good covering of snow precedes extremely cold weather. The maximum temperature in November was 67° on Nov. 12 and the minimum, 10° on Nov. 29.

Yields of 12 varieties of oats grown in three 1.50th-acre plots at Mandan, N. Dak., 1934.

Variety	C. I. no.	Yield (Bu. per acre)
Sixty-Day	165	3.2
Iogold	2329	4.3
Gopher	2027	3.8
Carleton	2378	2.9
Rainbow	2345	3.8
Minrus	2144	2.9
Markton	2053	3.2
Green Russian	2344	2.3
Rusota	2343	1.7
Anthony	2143	3.0
Victory	560	2.3
Wayne	2567	2.5

UTAH

Agricultural Experiment Station, Logan (Cereal Agronomy, R. W. Woodward) (Dec. 1) Fall-sown wheat was in excellent condition when snow fell on the ground unfrozen and wet from 2 to 3 feet. Winter-wheat varieties in the nursery were about 2 inches high, while in most commercial fields the wheat was in even better condition, especially in Box Elder County.

The weather was warm for the first 3 weeks of November and there were satisfactory weekly showers. During the last week snows fell and temperatures dropped. Reports indicate from 2 to 3 feet of snow in the mountains - the heaviest for this time of year since 1927.

An effort is being made to summarize the results of small-grain studies and publish them as Station bulletins. Work is also being done on the 1934 annual report.

The precipitation for November totaled 1.94 inches and the mean monthly temperature was 38°, which is the highest recorded for the 4-year period 1931-34 at North Logan.

CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, L. L. Davis) (Dec. 3) In general, the yields of rice at the Station this year were slightly higher than the average. The following table gives the yields of rice varieties grown on series 700 in plots in 1934:

Average yield per acre in pounds and bushels of rice varieties grown in triplicate 1/66th-acre plots on series 700 west, Biggs Rice Field Station, Biggs, Calif., 1934.

Variety	C.I.no.	Av.yield per acre Pounds	Bushels
Colusa x Lady Wright Sel.243A17-3-1-1-1-1[a]	--	6,402	142.3
Caloro x Lady Wright Sel.241B 7-33[a]	--	6,248	138.9
Caloro x Lady Wright el.241B 5-3-1-1-1-2[a]	--	6,050	134.4
(Caloro x Niro Vialone) x Caloro 2715 A 12-1-2[a]	--	5,918	131.5
Niro Vialone x Watribune 244 A 6-20	--	5,852	130.0
Caloro Checks Av. of 9 plots	1561-1	5,827	129.5
Colusa x Lady Wright Sel. 243 A 1-1-1	--	5,698	126.6
Kairyo Fukuyama	7344	5,588	124.2
Shiro Beniya	6928	5,478	121.7
Colusa x Lady Wright Sel. 243 A 6-50	--	5,434	120.8
Kokuryo Miyako	6919	5,302	117.8
Selection 175	--	5,258	116.8
Suigappon	7355	5,170	114.9
Nakata Shinriki	6445	5,104	113.4
Selection 361	--	4,994	111.0
Haya Kitabu[a]	6849	4,994	111.0
Gin Bozu	6873	4,774	106.1
Early Watatbune	--	4,752	105.6
Caloro x Lady Wright Sel. 241 B 6-53	--	4,730	105.1
Caloro x Lady Wright Sel. 241 B 31-2-18[b]	--	4,708	104.6
Kairyo Shinriki	6363	4,642	103.2
Caloro x Lady Wright Sel. 241 B 21-3-1-3[b]	--	4,642	103.2
Early Prolific[c]	--	4,620	102.7
Caloro x Lady Wright Sel. 241 B 21-3-1-17[b]	--	4,620	102.7
Lady Wright[c]	--	4,598	102.2
Caloro x Lady Wright Sel. 241 B 21-3-1-24[b]	--	4,488	99.7
Mito	6745	4,444	98.8
Calady[b]	--	4,422	98.3
Peerless[c]	--	4,312	95.8

[a] Increased from the nursery and grown the first time in plots in 1934; [b] medium grain types; [c] long grain types.

Weather conditions in California in October were favorable for the harvesting and threshing of the rice crop. Rains in November made threshing very difficult, however. It is estimated that about 150,000 bags of rice are still unthreshed. Some of this rice is in the shock and the remainder has not been harvested.

The rainfall at the Biggs Rice Station for September, October, and November 1934 was 5.34 inches, while the average is 3.41 inches.

Rough rice in California is selling at the minimum price set by the rice marketing agreement, which is a dollar seventy a cwt. for rice yielding 50 pounds of head rice. Very little rough rice is being sold at this price.